GoldStar

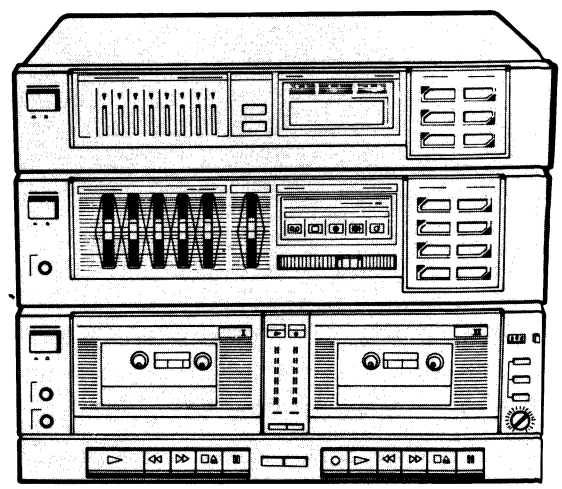
COMPONENT SYSTEM

SERVICE MANUAL

CAUTION

BEFORE SERVICING THE CHASSIS, READ THE "SAFETY PRECAUTIONS" IN THIS MANUAL.

MODEL: GSA -5420
GST -5420
GSW-5420



MODEL: CS-5420

GoldStar

CONTENTS

MODEL: GSA-5420

SPECIFICATIONS 3
NAMES OF CONTROL PARTS 4
BLOCK DIAGRAM 5
PCB LAYOUT 6
SCHEMATIC DIAGRAM 8
WIRING DIAGRAM 9
EXPLODED VIEW 10
REPLACEMENT PARTS LIST 11
IC EQUIVALENT CIRCUIT 12
PACKING OF THE SET 12

MODEL: GST-5420

SPECIFICATIONS 13
NAMES OF CONTROL PARTS 14
ADJUSTMENT 15
BLOCK DIAGRAM 19
WIRING DIAGRAM 20
SCHEMATIC DIAGRAM 21
PCB LAYOUT 22
IC EQUIVALENT CIRCUIT 23
EXPLODED VIEW 24
REPLACEMENT PARTS LIST 25
PCKING OF THE SET 26

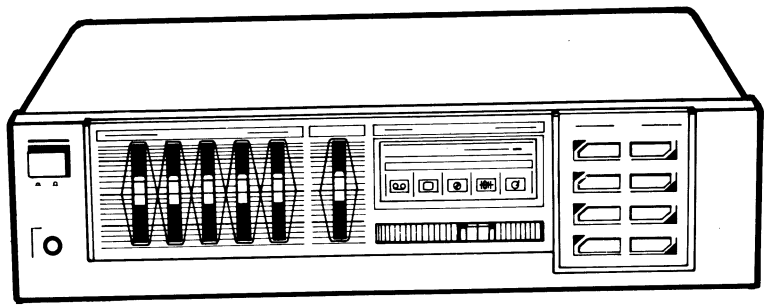
MODEL: GSW-5420

SPECIFICATIONS 27
NAMES OF CONTROL PARTS 28
ADJUSTMENT 29
BLOCK DIAGRAM 34
SCHEMATIC DIAGRAM 35
PCB LAYOUT 36
WIRING DIAGRAM 37
IC EQUIVALENT CIRCUIT 38
EXPLODED VIEW 39
REPLACEMENT PARTS LIST 42
PACKING OF THE SET 44

SAFETY PRECAUTION

Many Electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual, electrical components having such features are identified by a ⚠ in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

STEREO INTEGRATED AMPLIFIER



MODEL: GSA-5420

SPECIFICATIONS

ELECTRICAL

THD	0.06%
Frequency Response	20Hz-20kHz
Signal to Noise Ratio	65dB
Graphic Equalizer	
100Hz/340Hz/1kHz/3.4kHz/10kHz	± 12dB
Input Sensitivity	
Phono	2.5mV
Tape	160mV
Aux	160mV
Input Impedance	
Phono/Tape/Aux	47kohms

GENERAL

Output Power	40W/ch
Line Voltage	240V, 50Hz
Power Consumption	175W
Dimensions (Width × Height × Depth)	345 × 86.5 × 280 (mm)
Weight	4.7kg

NOTE: Specifications for this model are subject to change without prior notice.

NAMES OF CONTROL PARTS

[1] POWER switch
[2] 5 BAND GRAPHIC EQUALIZER Control
[3] BALANCE Control
[4] FUNCTION INDICATOR
[5] STEREO MODE INDICATOR
[6] FUNCTION Selector Buttons
[7] MODE Button
[8] HI-FILTER Button
[9] LOUDNESS Button
[10] TAPE Button
[11] VOLUME Control
[12] PHONES Jack
[13] GND Terminal
[14] Input Jacks
[15] SPEAKER Terminals
[16] POWER Supply Socket
[17] AC OUTLET
[18] AC POWER Supply Cord

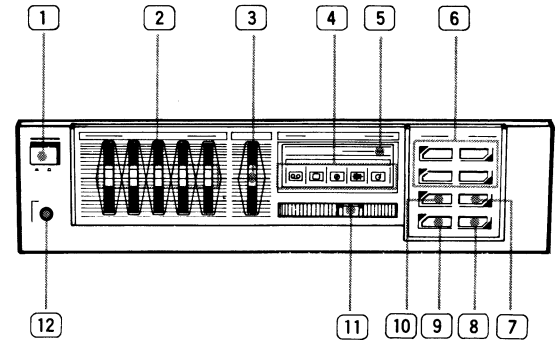


Figure1 FRONT VIEW

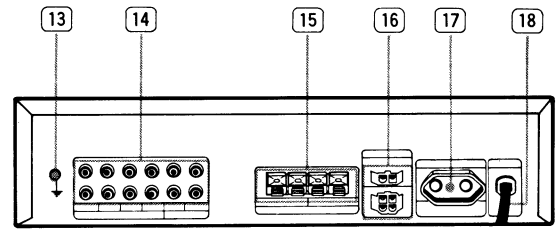
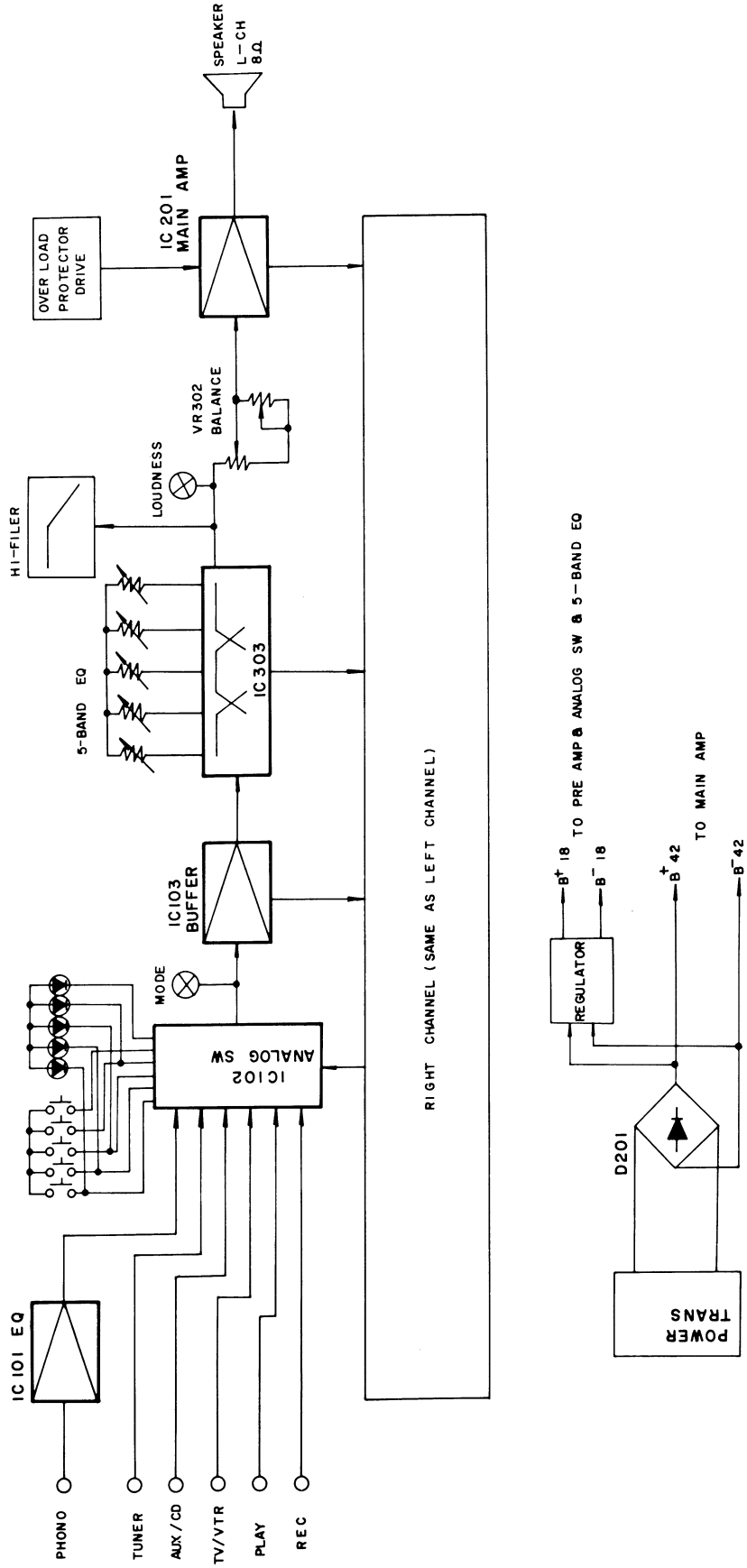


Figure2 BACK VIEW

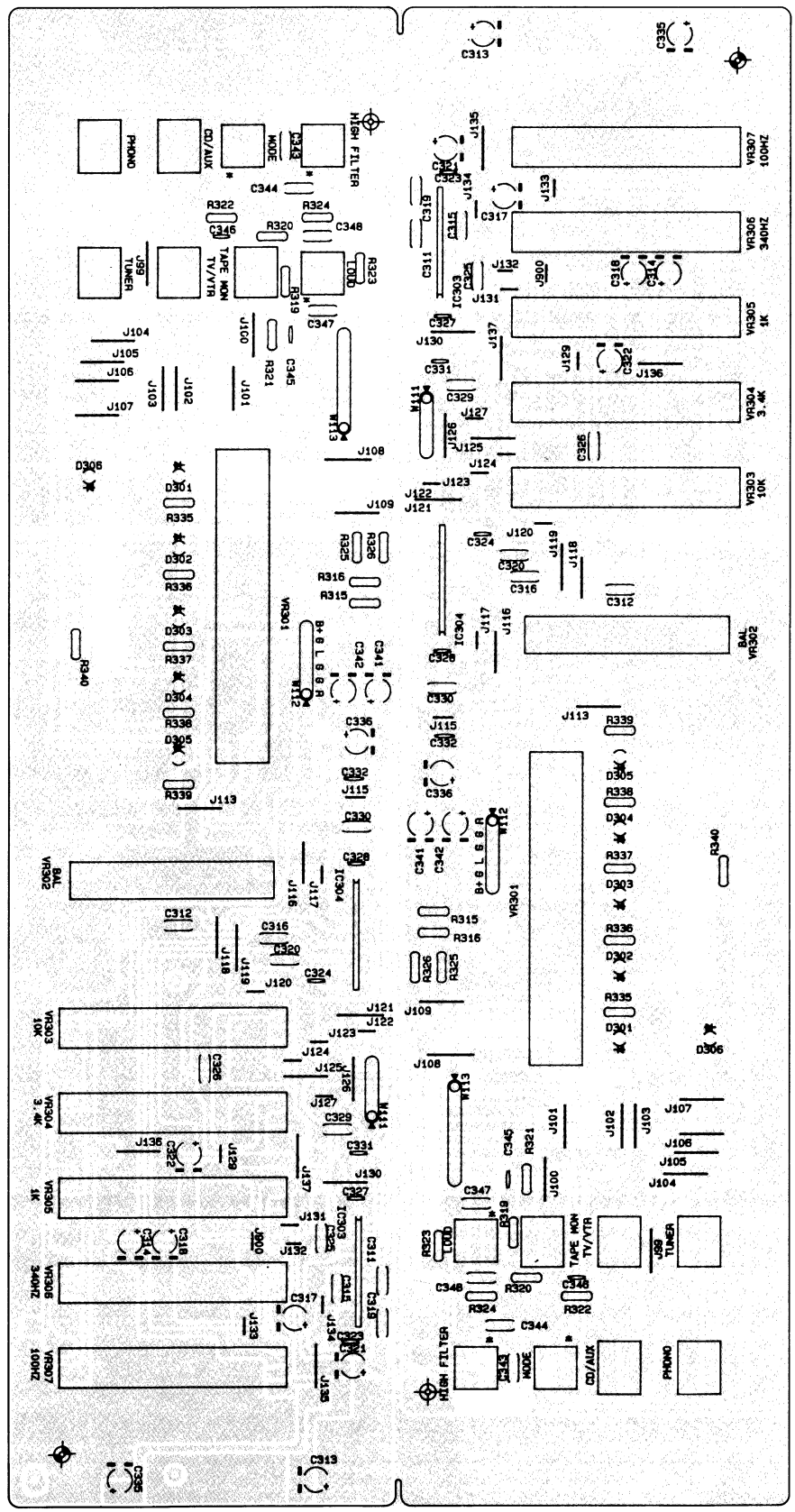
NOTE: For a complete description of the operation of this unit, please refer to the owner's manual.

BLOCK DIAGRAM

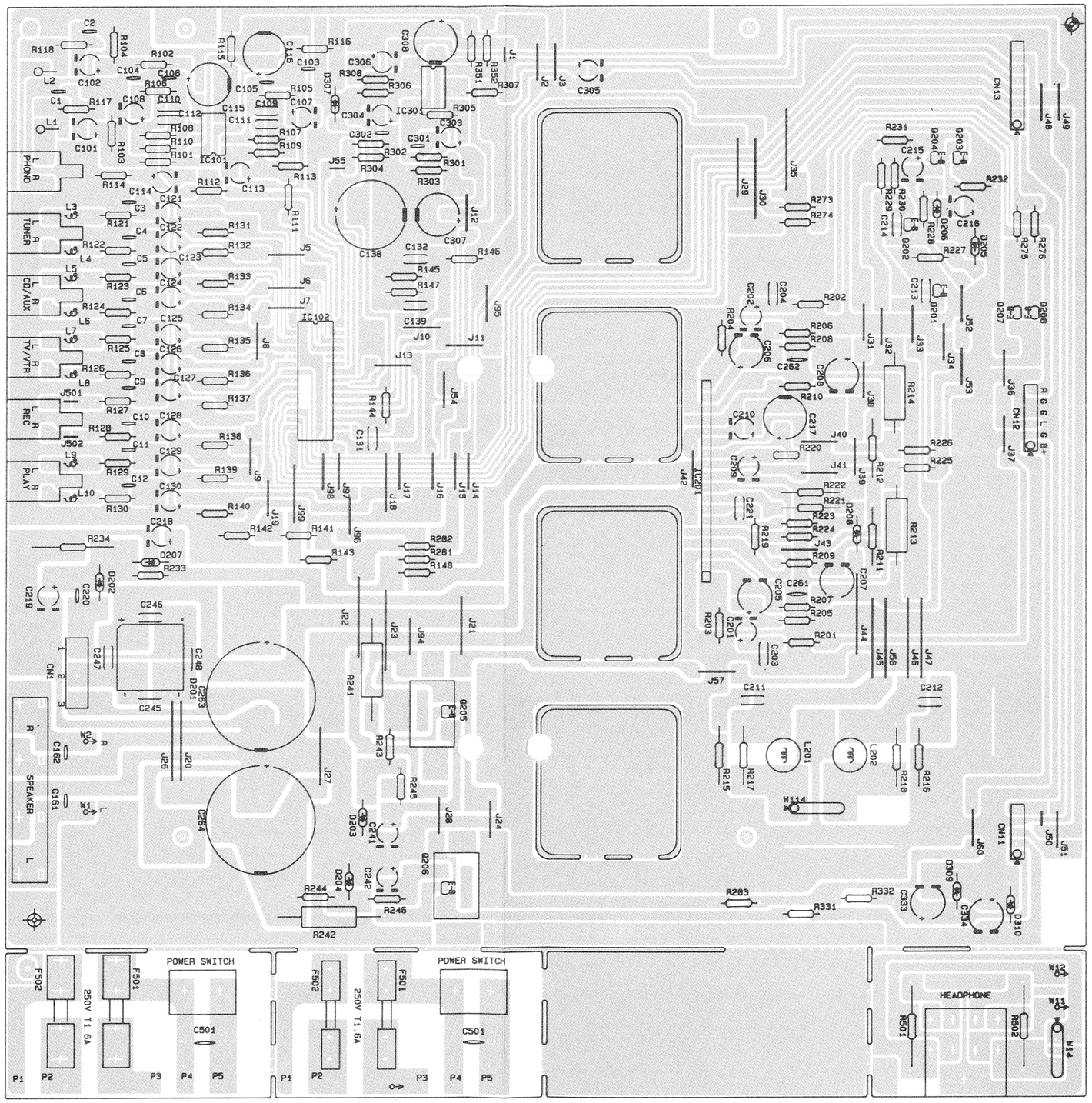


PCB LAYOUT

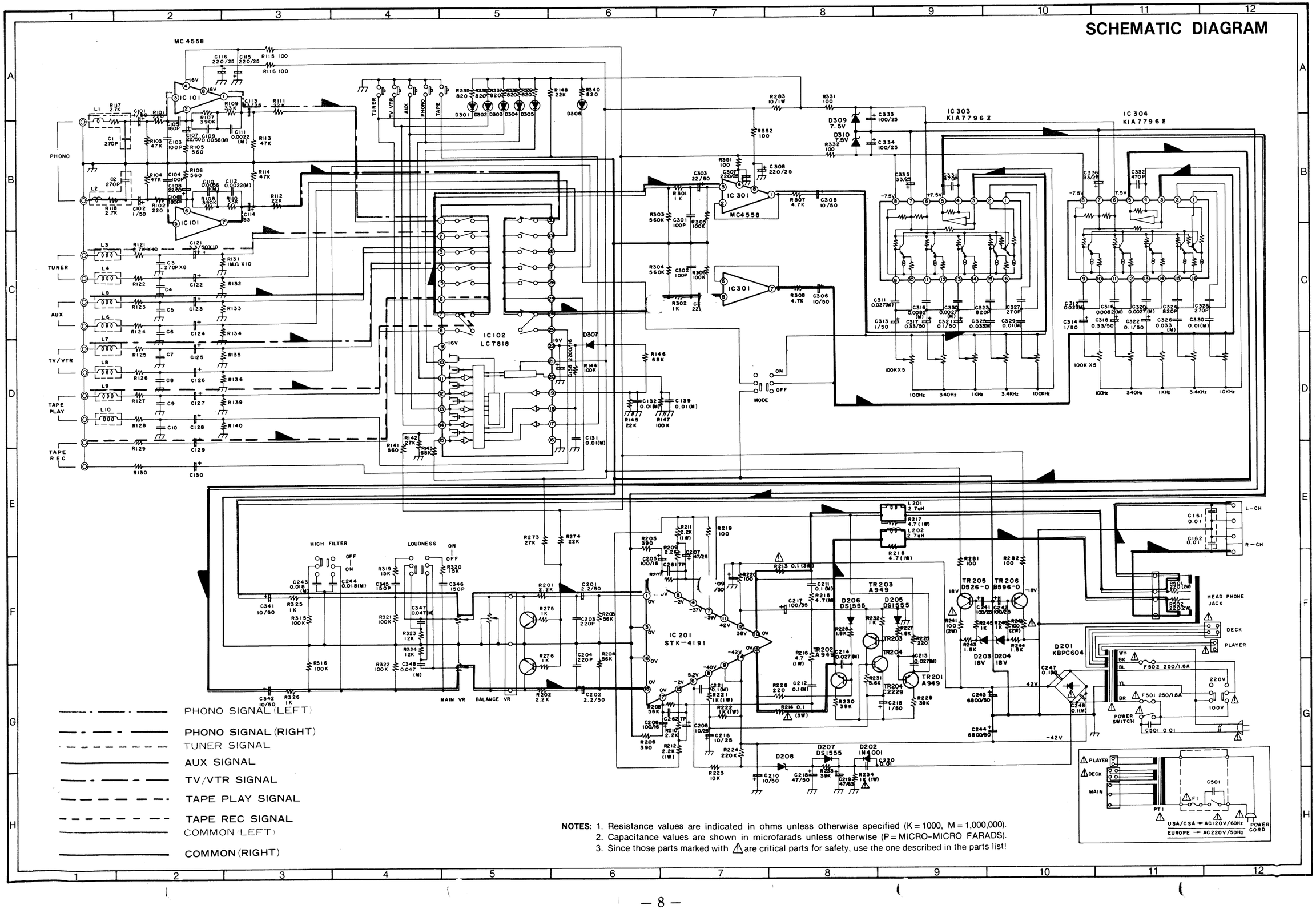
5 BAND EQ P.C. BOARD



MAIN/EQ P.C. BOARD

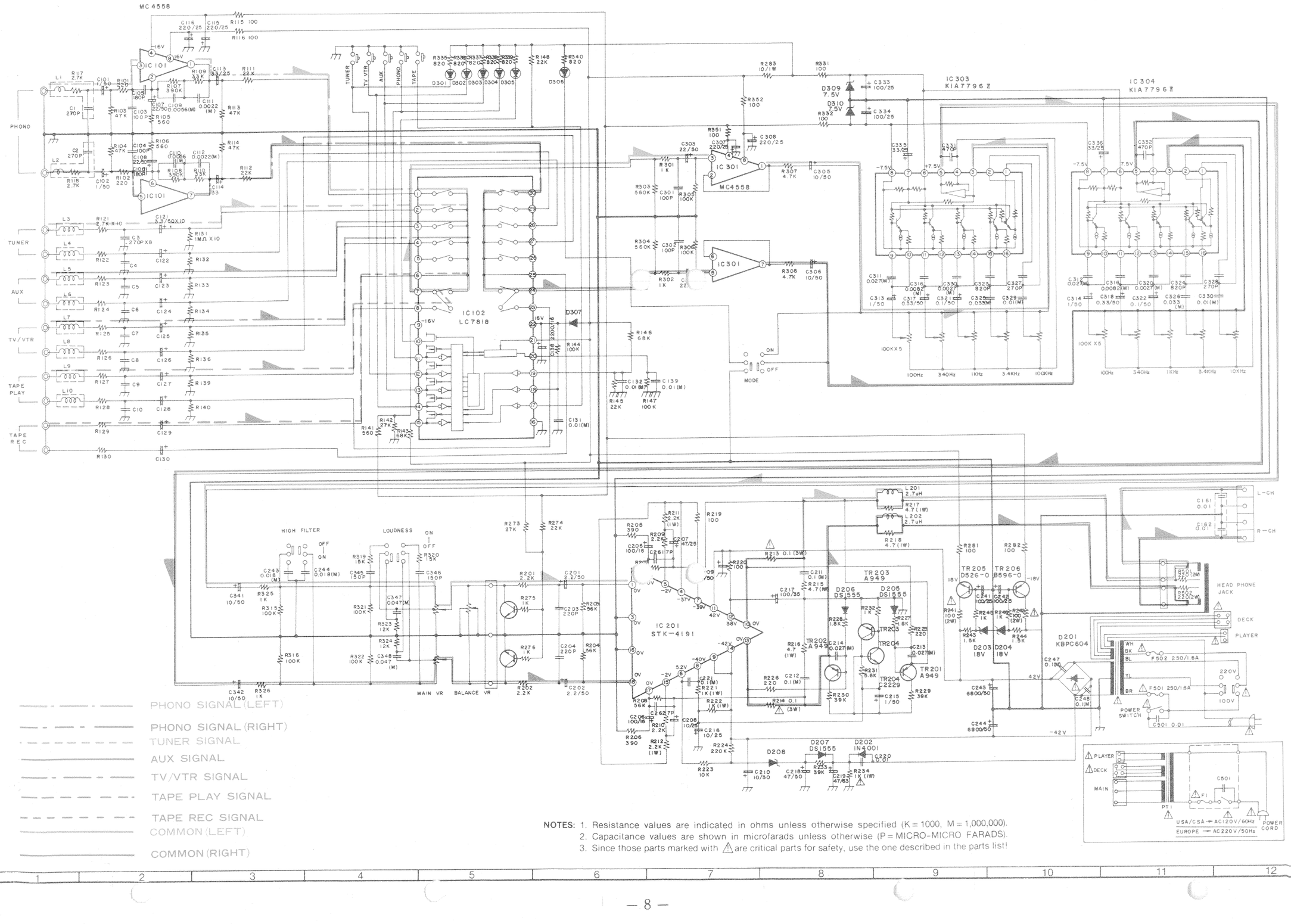


SCHEMATIC DIAGRAM



NOTES: 1. Resistance values are indicated in ohms unless otherwise specified (K = 1000, M = 1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P = MICRO-MICRO FARADS).
3. Since those parts marked with ⚠ are critical parts for safety, use the one described in the parts list!

SCHEMATIC DIAGRAM



PHONO SIGNAL (LEFT)

PHONO SIGNAL (RIGHT)

TUNER SIGNAL

AUX SIGNAL

TV/VTR SIGNAL

TAPE PLAY SIGNAL

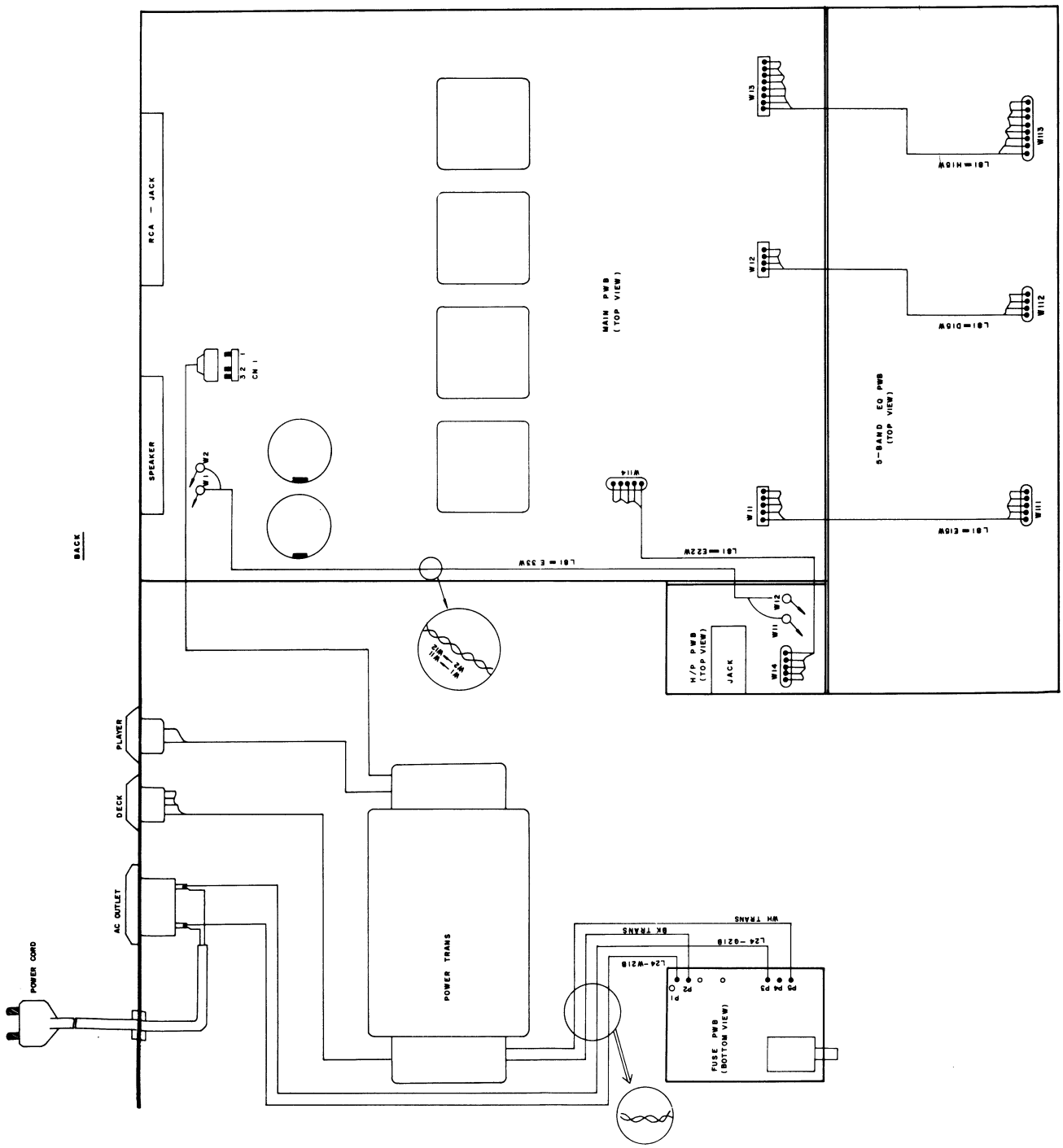
TAPE REC SIGNAL

COMMON (LEFT)

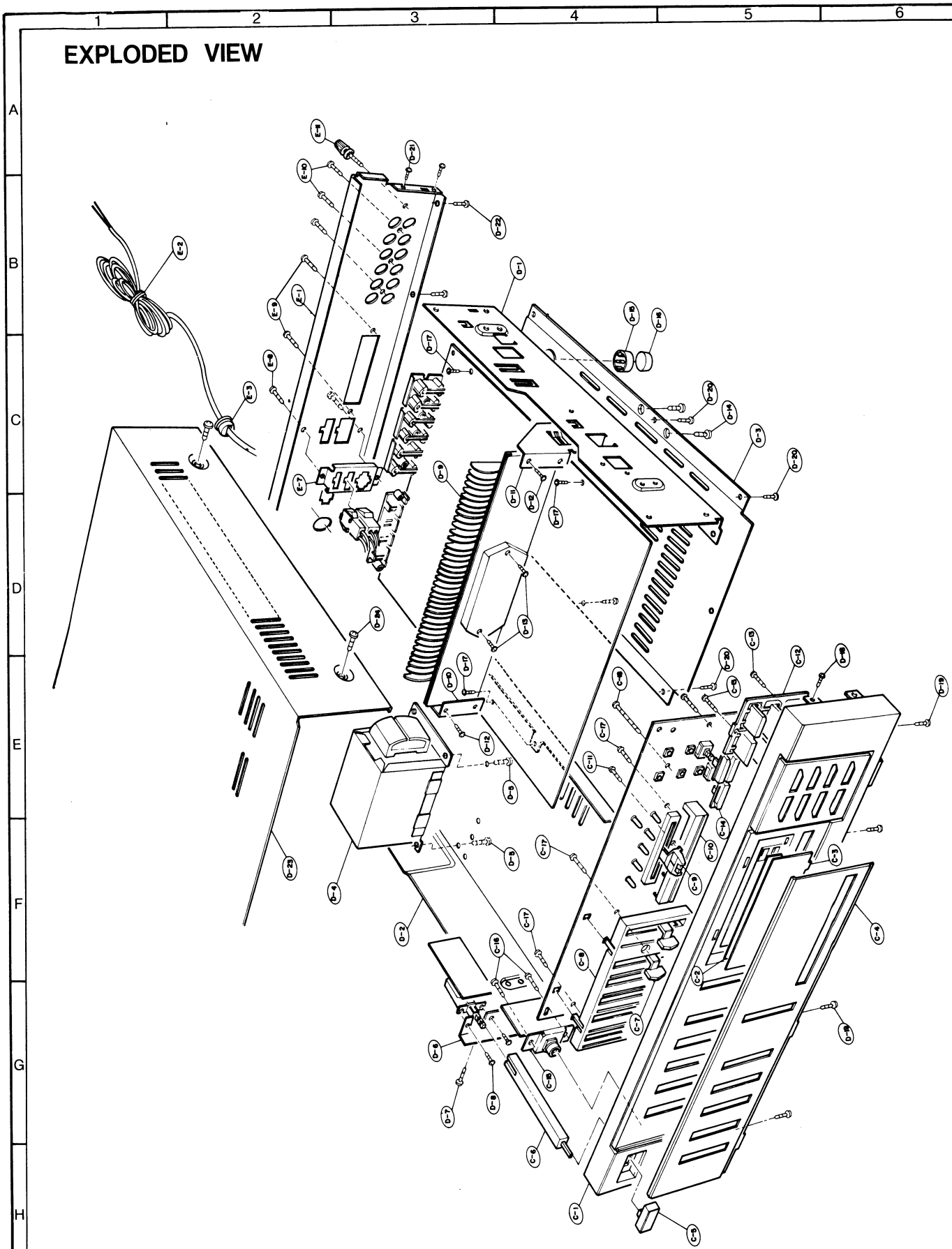
COMMON (RIGHT)

NOTES: 1. Resistance values are indicated in ohms unless otherwise specified (K = 1000, M = 1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P = MICRO-MICRO FARADS).
3. Since those parts marked with ⚠ are critical parts for safety, use the one described in the parts list!

WIRING DIAGRAM



EXPLODED VIEW



REPLACEMENT PARTS LIST

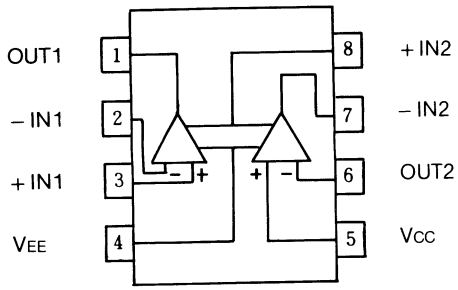
NOTE: Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

REF. NO.	PART NO.	DESCRIPTION
		INTEGRATED CIRCUITS
IC101	668-051F	KIA75558P, Dual OP Amp
IC102	668-661C	LC7818
IC201	668-561C	STK4191(2), Power Amp
IC301	668-051F	KIA75558P, Dual OP Amp
IC303,304	668-654A	KIA7796Z, 5 Dot Graphic Equalizer Amp
		TRANSISTORS
Q201-203	666-421A	PNP, KTA949-O
Q204	665-834A	NPN, KTC2229-O
Q205	665-708A	NPN, KTD526-O
Q206	664N418A	NPN, KTB596-O
Q207,208	665T812B	NPN, KTC1815-Y
		DIODES
D201 ⚠	652-611A	Rectifier, KBPC604
D202	652-002C	Rectifier, DS4002
D203,204	654-725A	Zener, DZW18
D205-207	651T003A	Switch, DS4148
D208	654-724C	Zener, DZ13B
D301-304	653-636D	LED, Green, SLR54GC3-P
D305,306	653-636A	LED, Red, SLR54URC3-M
D307	651T003A	Switch, DS4148
D309, 310	654-723D	Zener, DZ7.5B
		COILS
L201, 202	636-603B	2.7μH, Inductor
		VARIABLE RESISTORS
VR301	612-618B	250KB
VR302	612-610V	250KW
VR303-307	612-610W	100KW
		SWITCHES
SW301-303	554-633A	Push, SPEA12
SW304-308	558-908A	Tact, KH10902
SW501	554-612B	Push, SDLIP
		OTHER CIRCUITRY PARTS
	576-002A	Jack Block, S-437P-4P
	561-100B	Speaker Terminal, SP-016B
	572-059D	Jack, Headphone
		PCB ASSEMBLIES
	511-342A	PCB Assembly, Main/EQ
	511-381A	PCB Assembly, 5 Band EQ

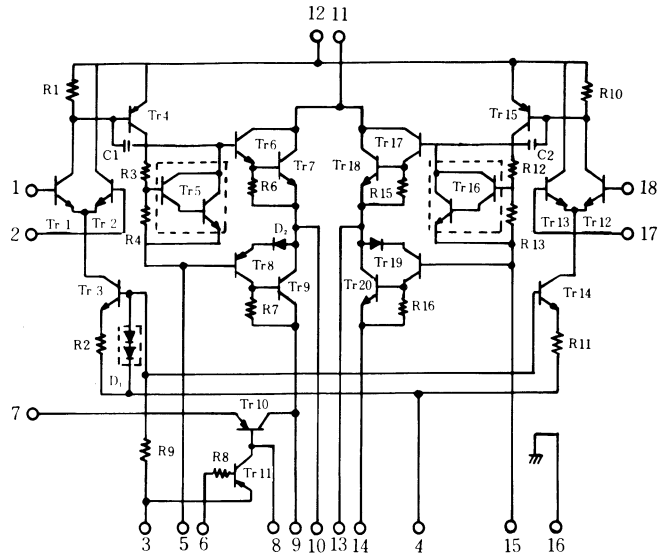
REF. NO.	PART NO.	DESCRIPTION
		CABINET PARTS
C-1	258-544A	Front Panel
C-2	231-540E	Sheet, Display
C-3	236-543A	Window, Function
C-4	236-544A	Window, Front
C-5	273-058A	Knob, Power
C-6	324-497A	Holder, Power
C-7	273-550B	Knob, Slide Volume
C-8	324-552A	Holder, Slide Knob
C-9	273-544A	Knob, Slide
C-10	221-999A	Cover Slide Knob
C-11	353-025F	Screw, Special 3×8
C-12	273-540C	Knob, Function
C-13	353-025F	Screw, Special 3×8
C-14	273-541A	Knob, Push
C-15	321-414A	Bracket Phone Jack
C-16	353-025F	Screw, Special 3×8
C-17	353-025K	Screw, Special 3×12
C-18	353-025N	Screw, Special 3×24
D-1	315-510A	Frame, Side
D-2	313-510A	Chassis, Bottom
D-3	256-520A	Plate, Bottom
D-4 ⚠	641-738D	Trans, Power 240V
D-5	TRQ2241K	Screw, TRQ+4×12
D-6	321-410A	Bracket Power Switch
D-7	TRQ1830J	Screw, TRQ2+3×6A
D-8	MRC1830J	Screw
D-9	255-510A	Heatsink
D-10	321-411A	Bracket Heatsink (L)
D-11	321-411B	Bracket Heatsink (R)
D-12	TRQ1830J	Screw, TRQ2+3×6A
D-13	TRQ1846J	Screw, TRQ2+3×20A
D-14	TRQ1830J	Screw, TRQ2+3×6A
D-15	265-027A	Foot
D-16	472-610B	Felt
D-17	TRQ1830J	Screw, TRQ2+3×6A
D-18	TRQ1830J	Screw, TRQ2+3×6A
D-19	TCQ1836J	Screw, TCQ+3×8
D-20	TRQ1830J	Screw, TCQ+3×6A
D-21	TBQ1830J	Screw, TBQ+3×6
D-22	TRQ1830J	Screw, TRQ2+3×6A
D-23	213-510A	Cabinet
D-24	353-633A	Screw, Special
E-1	258-970B	Panel, Back
E-2 ⚠	681-024B	Cord, Power
E-3	324-348A	Holder, Cord
E-7	321-544A	Bracket Connector
E-8	TRQ1836I	Screw, TRQ2+3×8A
E-9	353-025B	Screw, Special 3×8
E-10	353-025B	Screw, Special 3×8
E-11	353-055A	Screw, Special
		ACCESSORY
	481-245[illegible]	Owner's Manual

IC EQUIVALENT CIRCUIT

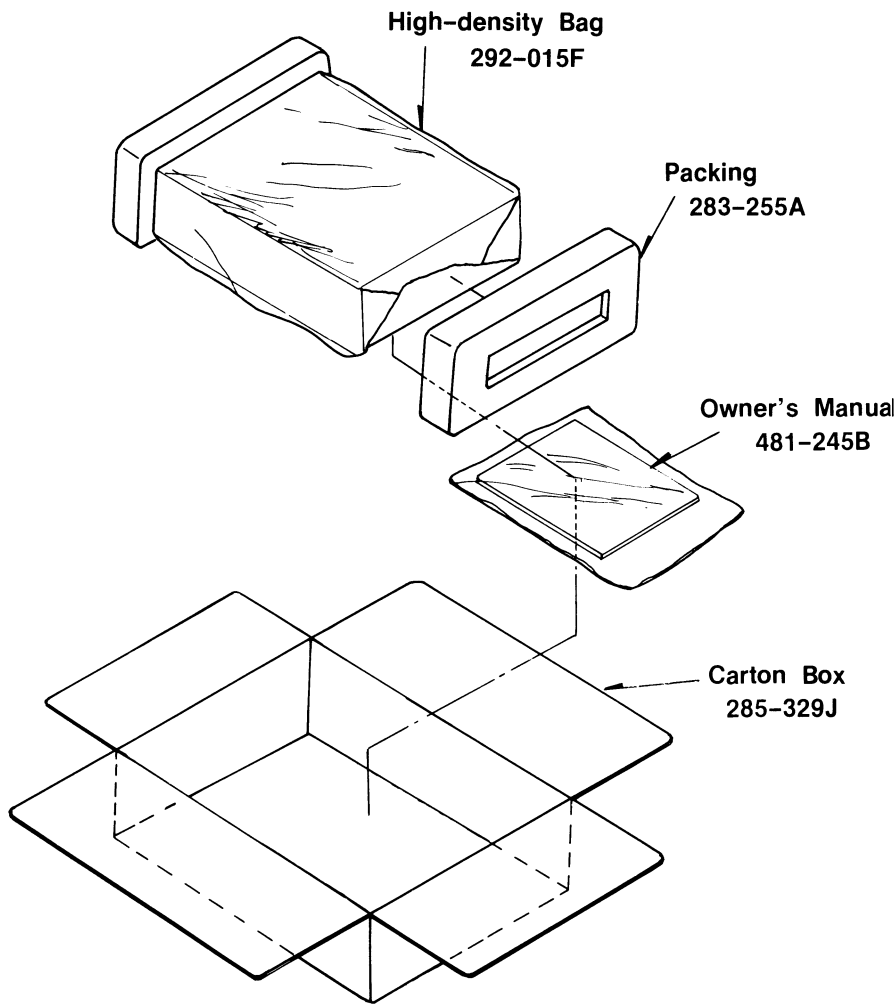
IC101, 301 KIA75558P



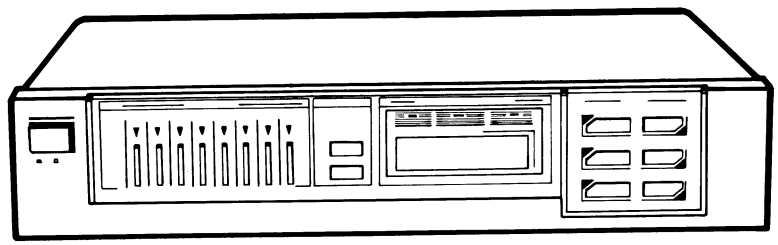
IC201 STK4191II



PACKING OF THE SET



LW/MW/FM STEREO SYNTHESIZER TUNER



MODEL: GST-5420

SPECIFICATIONS

MW

Frequency Range	522-1611kHz
Usable Sensitivity	300 μV/m
Image Rejection	40dB
I.F. Rejection	50dB
Signal to Noise Ratio	50dB
Frequency Response	70-2300 Hz

LW

Frequency Range	146-353kHz
Usable Sensitivity	400μV/m
Image Rejection	35dB
Signal to Noise Ratio	50dB
Frequency Response	70-2300 Hz

FM

Tuning Range	87.5-108.0 MHz
Usable Sensitivity	
Mono	1.0 μV
Stereo	3.5 μV
Signal to Noise Ratio	
Mono	70dB
Stereo	65dB
Image Rejection	70dB
Distortion	
Mono	0.15%
Stereo	0.2%
Auto Search Level	20 dB

GENERAL

Line Voltage	240V, 50Hz
Power Consumption	8.3W
Dimension (Width × Height × Depth)	345 × 65 × 250 (mm)
Weight	2.6 kg

NOTE: Specifications for this model are subject to change without prior notice.

NAMES OF CONTROL PARTS

[1] POWER Switch
[2] Channel LED
[3] PRESET REVERSE Button
[4] MEMORY Button
[5] PRESET REVERSE Indicator
[6] Auto Tuning Indicator
[7] FM Stereo Indicator
[8] DOWN/UP Tuning Frequency Button
[9] AUTO/MANUAL Search Button
[10] Band Selector Switch
[11] Tuning Frequency Display
[12] Radio Station Memory Buttons
[13] External FM Antenna Jack
[14] AM Loop Ant Socket
[15] Tuner Output Jack
[16] AC Power Supply Cord

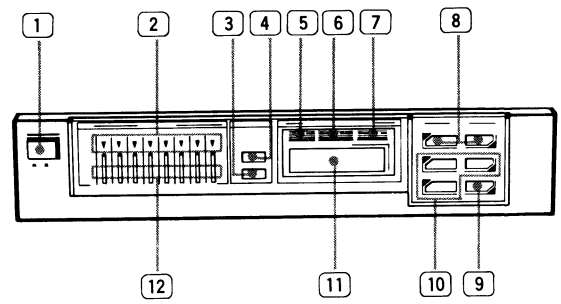


Figure3 FRONT VIEW

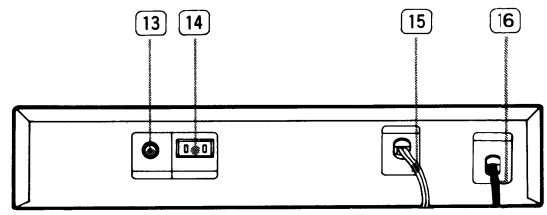


Figure4 BACK VIEW

Note: For a complete description of the operation of this unit, please refer to the owner's manual.

ADJUSTMENT

IMPORTANT

1. Check power-source voltage.
2. Set the function switch to band being aligned.
3. Keep the signal input as low as possible to adjust accurately.
4. Modulation and modulation frequency:

Item / Band	Modulation	Modulation frequency
MW/LW	1 kHz	30%
FM	1 kHz	100% (75 kHz Dev.)

ADJUSTMENT POINTS

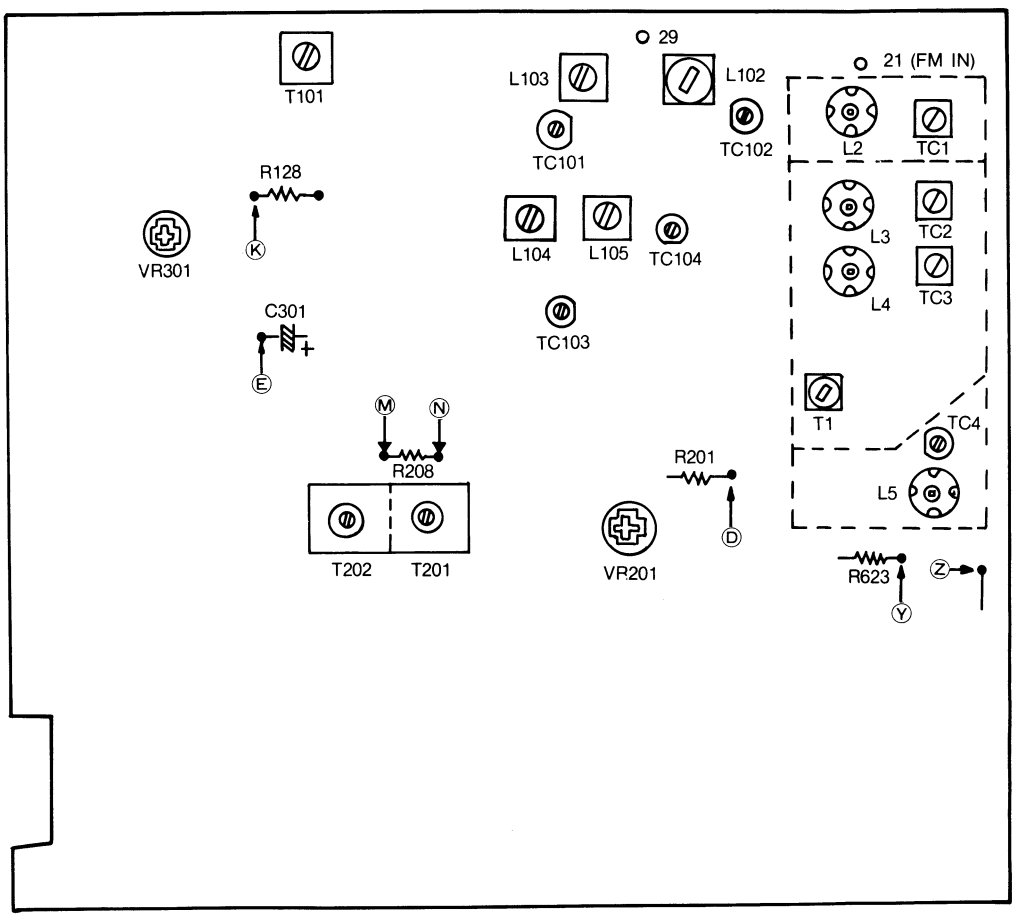


Figure5 MAIN P.C. BOARD

1. MW/LW IF ADJUSTMENT

IF Genescope ..... Connect the input to the test point "Ⓚ", connect the output to ㉙
Adjust for the IF wave form of Genescope to be maximum.

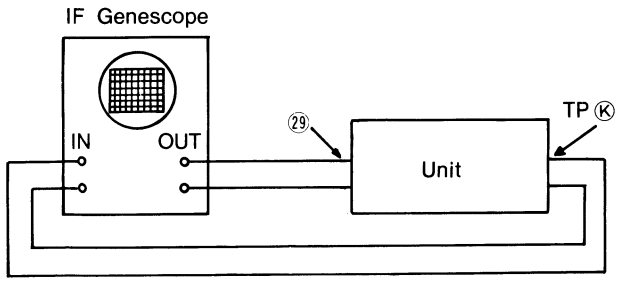


Figure6 AM/LW IF

IF	Adjust For	Adjustment
455 kHz	Maximum	T101

Figure 7 AM IF CURVE

2. MW COVERAGE ADJUSTMENT

DC Voltmeter ..... Connect to the test point "Ⓨ" and GND.

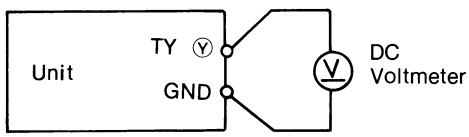


Figure8 MW COVERAGE

Step	Frequency	Adjust For	Adjustment
1	522 kHz	4.9V	L104
2	1611 kHz	24.5V	TC103
3	Repeat steps 1 and 2 several times.		

3. LW COVERAGE ADJUSTMENT

DC Voltmeter ..... Connect to the test point "Ⓩ" and GND.

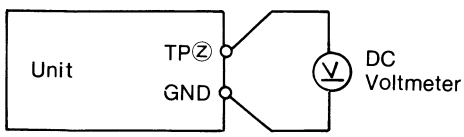


Figure9 LW COVERAGE

Step	Frequency	Adjust For	Adjustment
1	146 kHz	7V	L105
2	353 kHz	22.5V	TC104
3	Repeat steps 1 and 2 several times.		

4. MW/LW TRACKING ADJUSTMENT

Signal Generator ..... Connects to the MW antenna coil through the loop antenna.
Adjust for the indication of Electronic Voltmeter of the wave form of Oscilloscope to be maximum.

Step	Band	Frequency	Adjust For	Adjustment
1	MW	594 kHz	Maximum Sensitivity	L103
2		1404kHz	Maximum Sensitivity	TC102
3		Repeat steps 1 and 2 several times.		
4	LW	164 kHz	Maximum Sensitivity	L102
5		299 kHz	Maximum Sensitivity	TC101
6		Repeat steps 4 and 5 several times.		

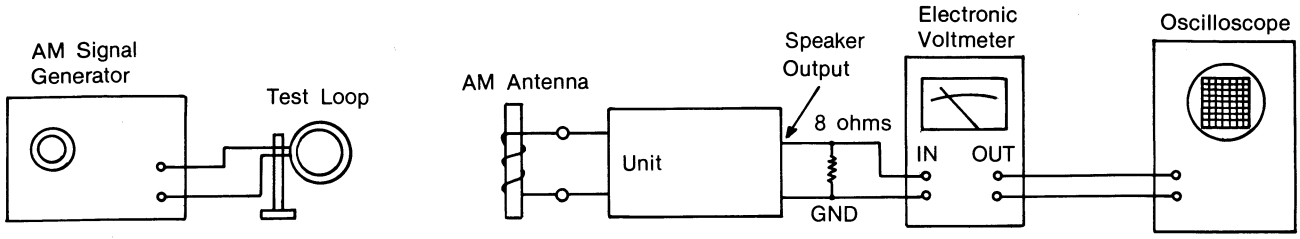


Figure 10 MW/LW TRACKING

5. FM IF ADJUSTMENT

IF Genescope ..... Connect the input to the test point "Ⓔ", connect the output to "Ⓓ".
DC Voltmeter ..... Connect to the test point "Ⓜ" and "Ⓝ".

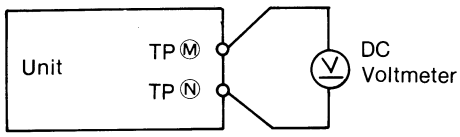


Figure11 FM IF

Step	Adjust For	Adjustment	Remarks
1	0V	T201	See figure 13.
2	Maximum linear S curve	T1	See figure 14.

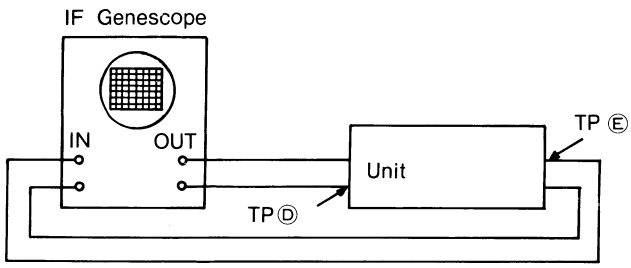


Figure12 FM IF

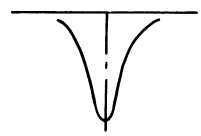


Figure13 FM "IF" CURVE

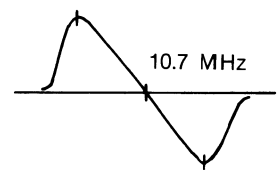


Figure14 FM "S" CURVE

6. FM RF (COVERAGE & TRACKING) ADJUSTMENT

Signal Generator ..... Connect to FM Antenna Terminal (FM IN) through the dummy.
DC Voltmeter ..... Connect to test point "Ⓨ" and GND.

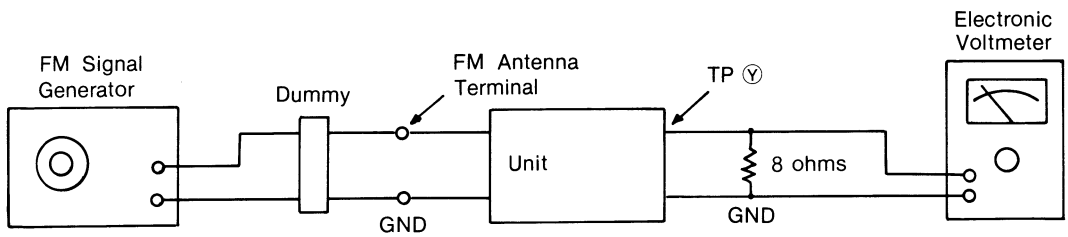
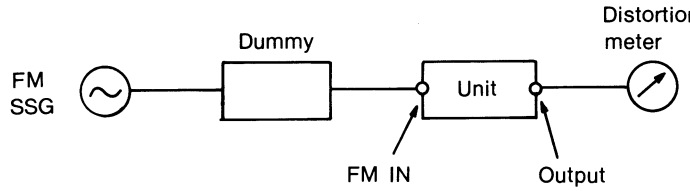


Figure 15 FM RF

Step	Test Stage	Frequency	Adjust For	Adjustment
1	Band Coverage	87.5 MHz	4.0V	L5
2		108.00 MHz	22.5V	TC4
3		Repeat steps 1 and 2 several times.		
4	Tracking	9.01MHz	Maximum Sensitivity	L2, L3, L4
5		106.1 MHz	Maximum Sensitivity	TC1, TC2, TC3
6		Repeat steps 4 and 5 several times.		

7. FM T.H.D. ADJUSTMENT

Signal Generator ..... Connect to FM Antenna Terminal (FM IN) through the dummy.
Distortion Meter ..... Connect to the output.

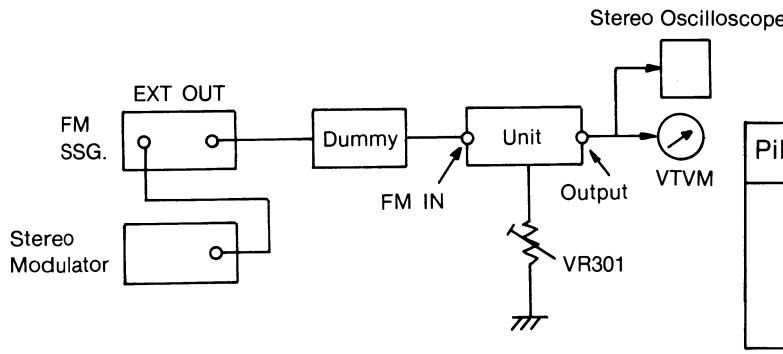


Frequency	Adjust For	Adjustment
98MHz	Minimum T.H.D.	T201, T202

Figure16 FM T.H.D.

NOTE: At this time, the DC voltage between test point Ⓔ and Ⓕ should be realigned by T201 to keep on 0 voltage, because the "S" curve may be detuned.

8. FM MPX ADJUSTMENT-SEPARATION



Pilot Signal	Adjust For	Adjustment
ON	Difference of R and L must be maximum	VR301

Figure 17 FM MPX

NOTE: In case of adjusting the stereo separation, if inputs is L (or R) channel, R (or L) channel must be maximum.

9. FM STEREO BEACON SENSITIVITY & AUTO SEARCH LEVEL

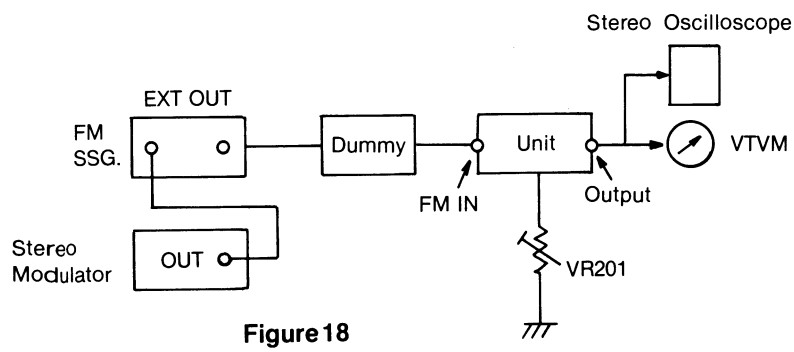
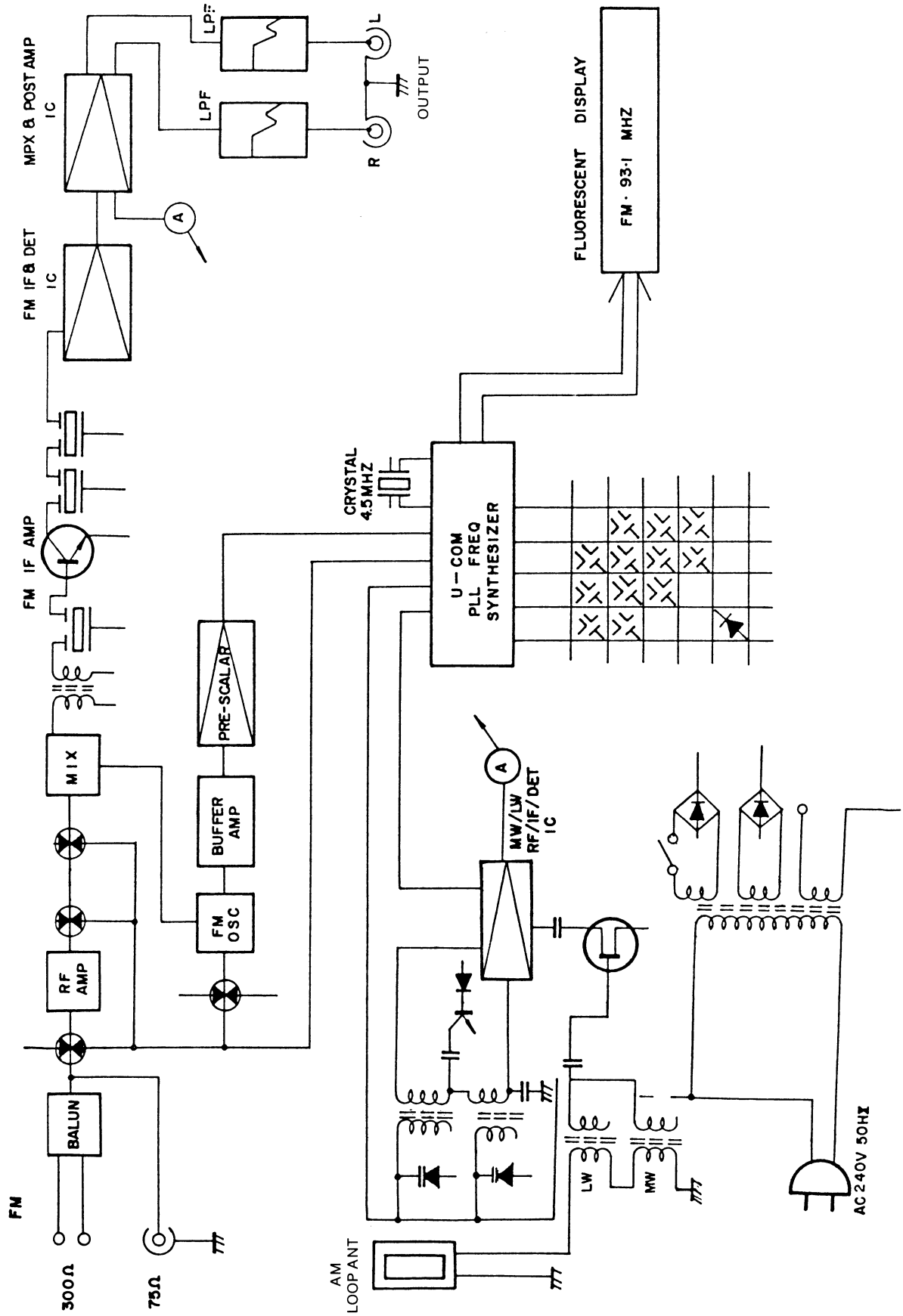


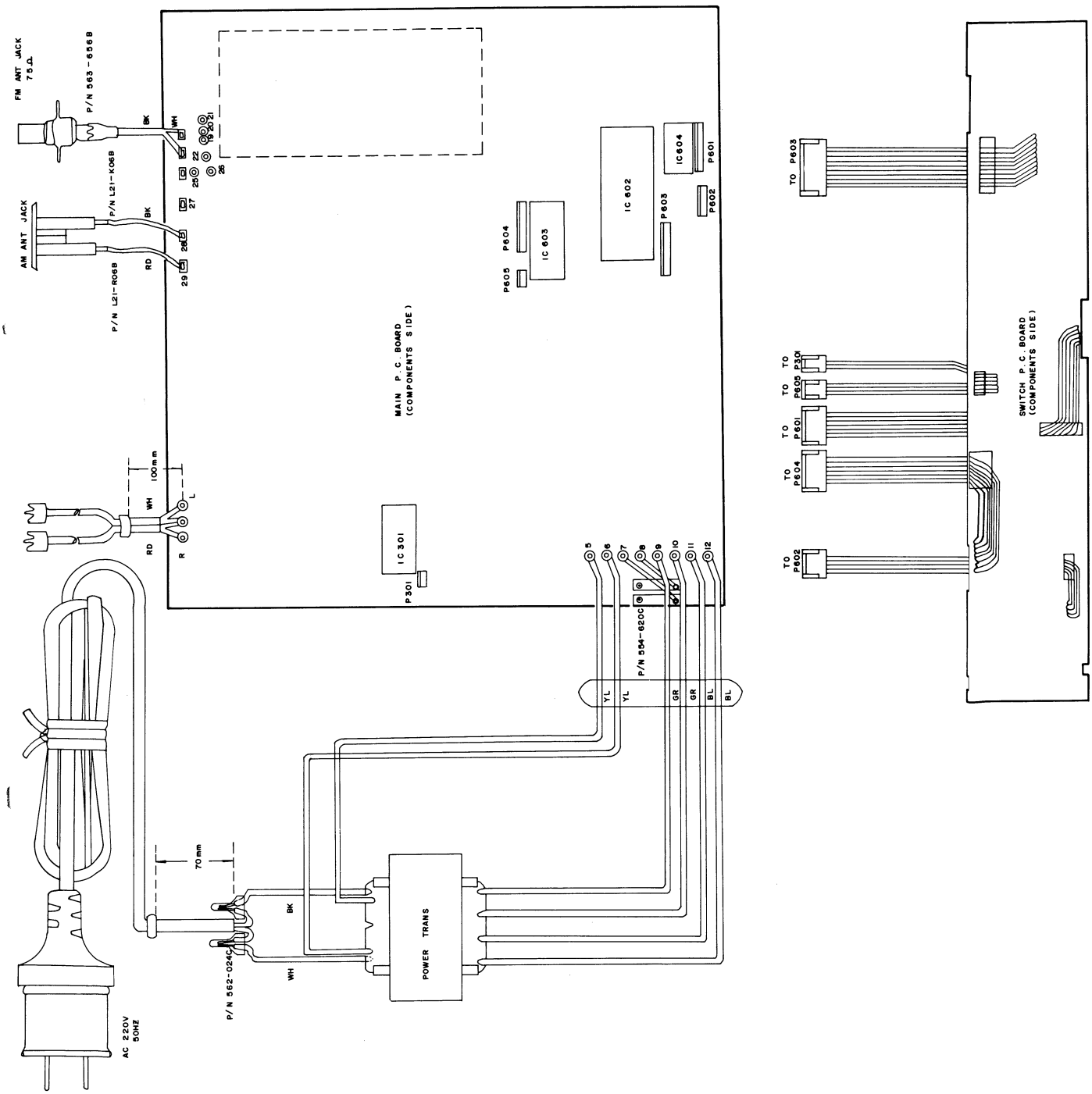
Figure18

Pilot signal	Input of FM IN	Adjust For	Adjustment
ON	5μV	ST LED lamp ON	VR 201

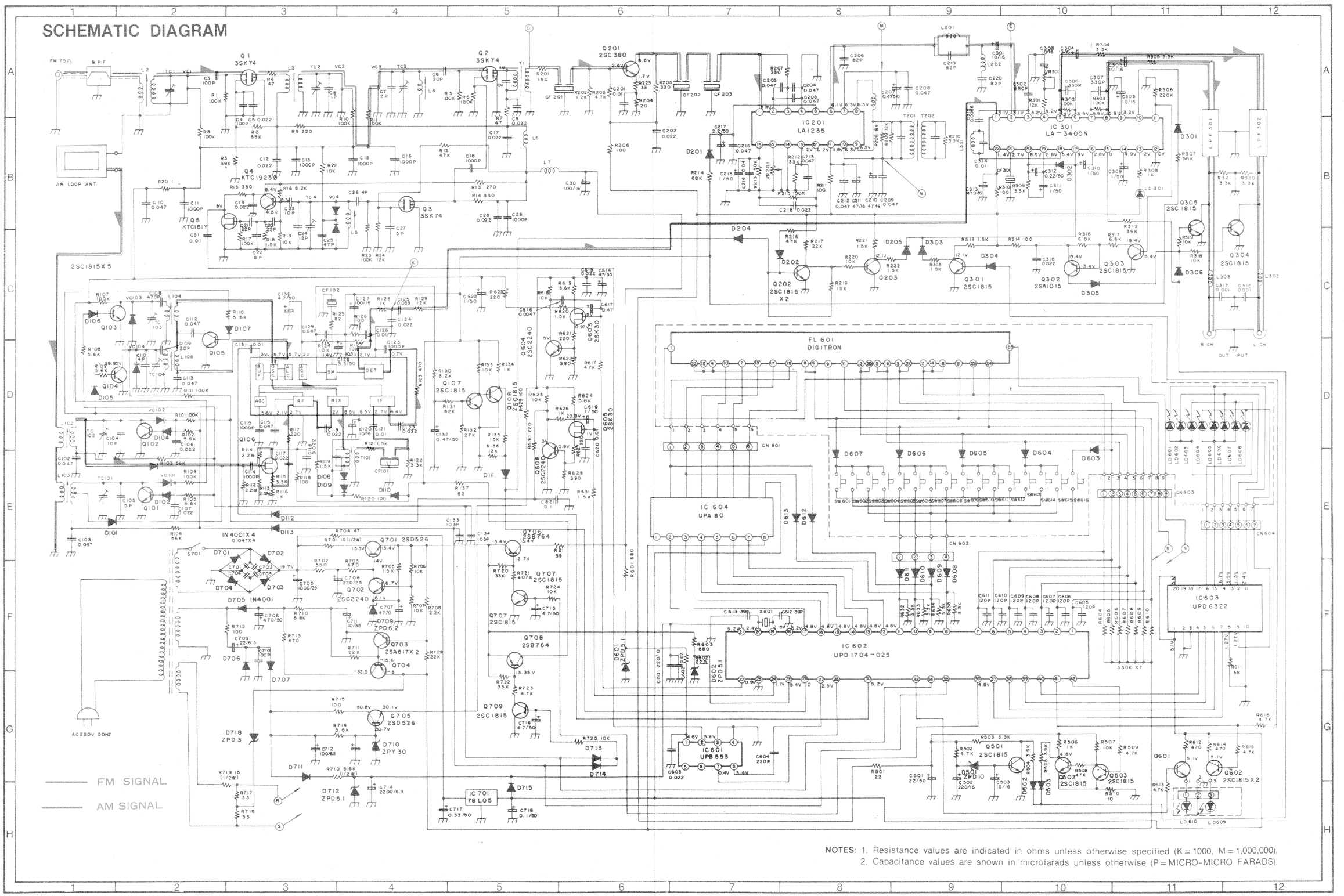
BLOCK DIAGRAM



WIRING DIAGRAM



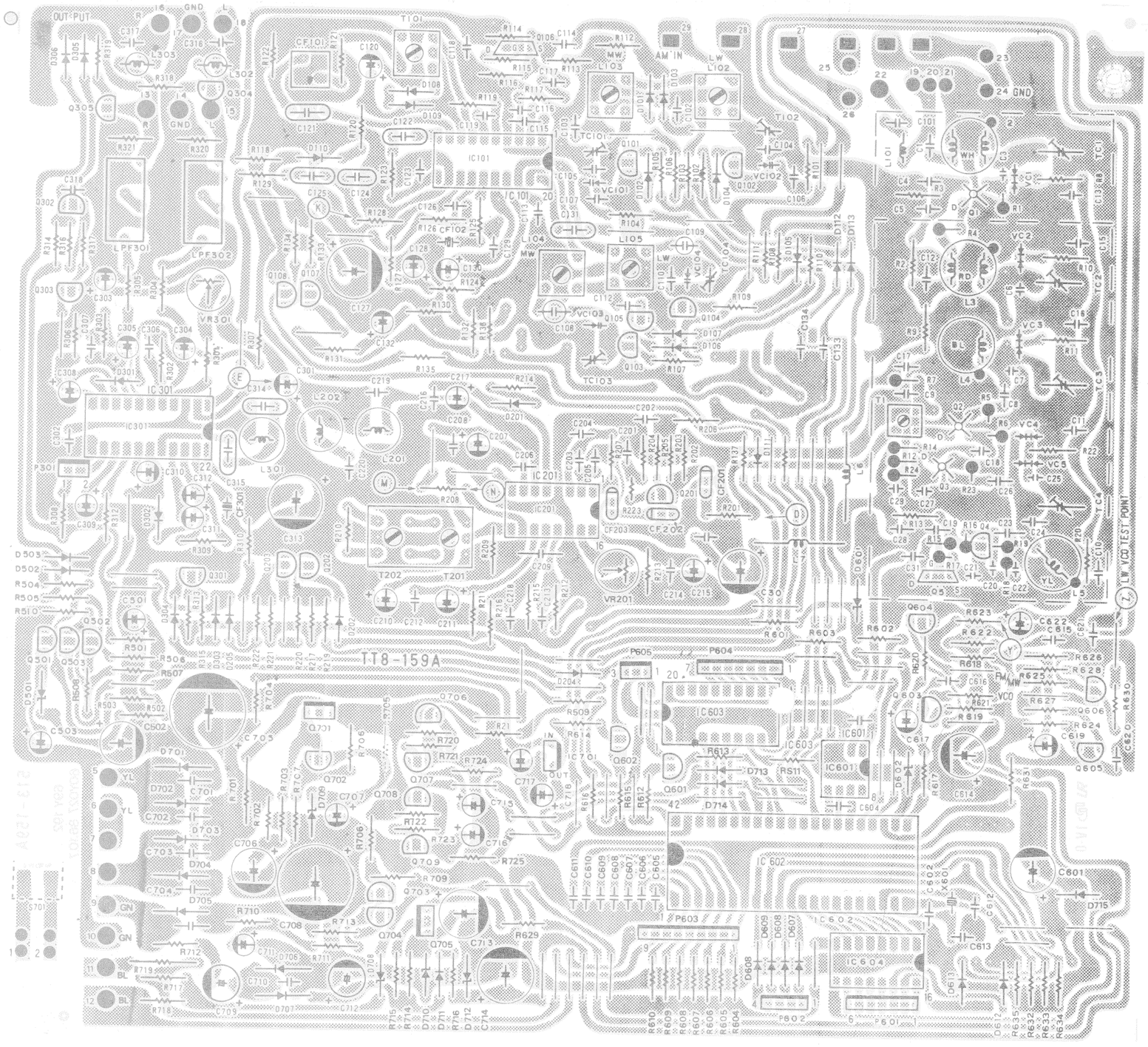
SCHEMATIC DIAGRAM



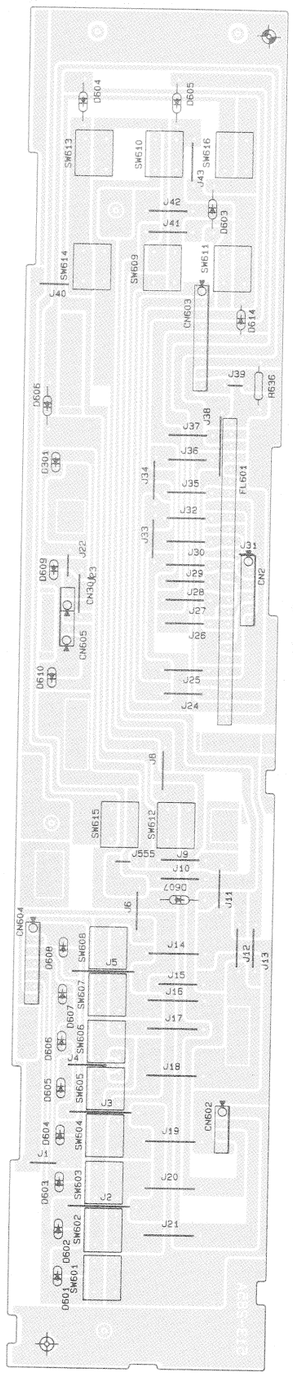
NOTES: 1. Resistance values are indicated in ohms unless otherwise specified (K = 1000, M = 1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P = MICRO-MICRO FARADS).

PCB LAYOUT

MAIN P.C. BOARD

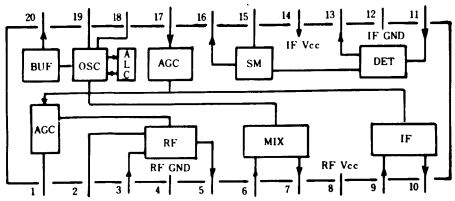


SWITCH P.C. BOARD

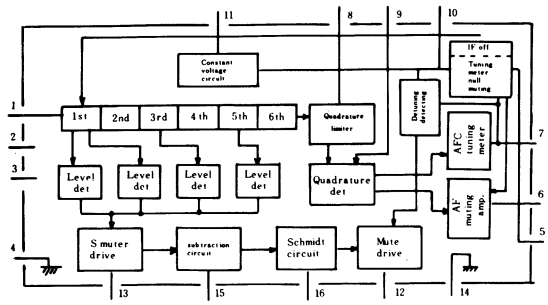


IC EQUIVALENT CIRCUIT

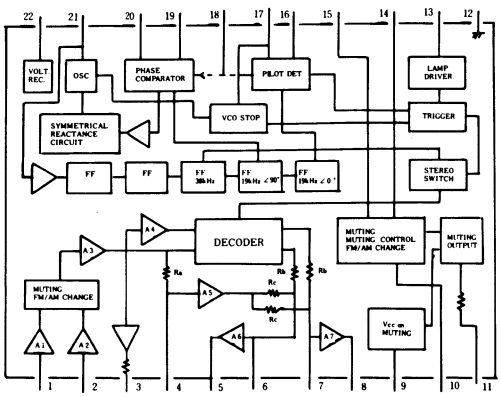
IC101 LA1245



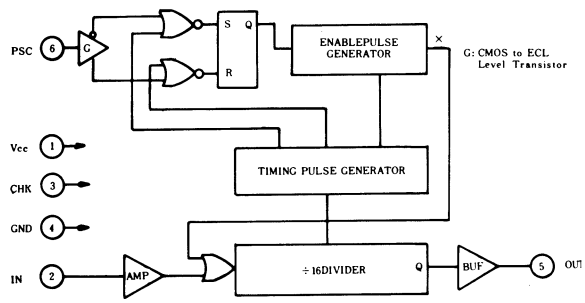
IC201 LA1235



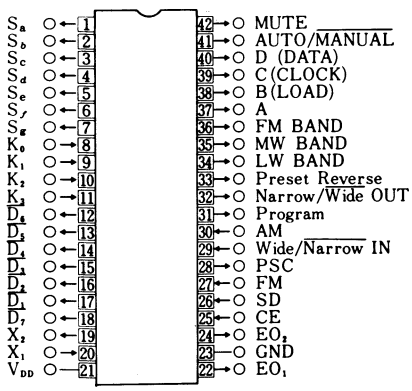
IC301 LA3400N



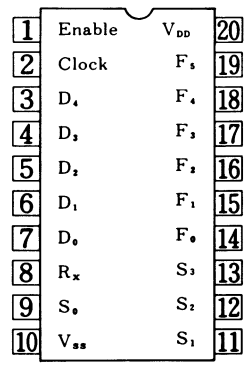
IC601 μPB553AC



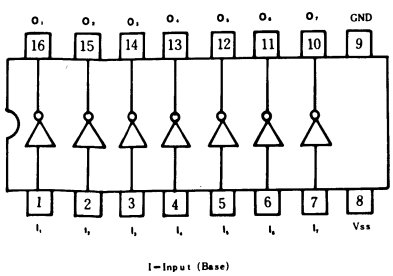
IC602 μPD1704-025



IC603 μPD6322

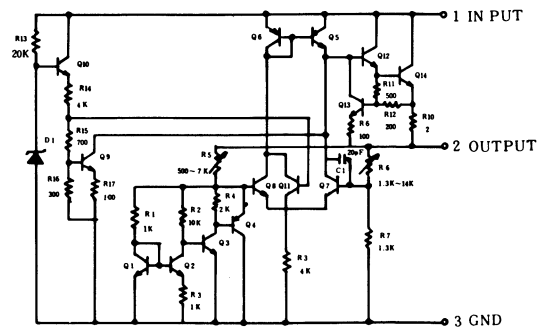


IC604 μPA80C

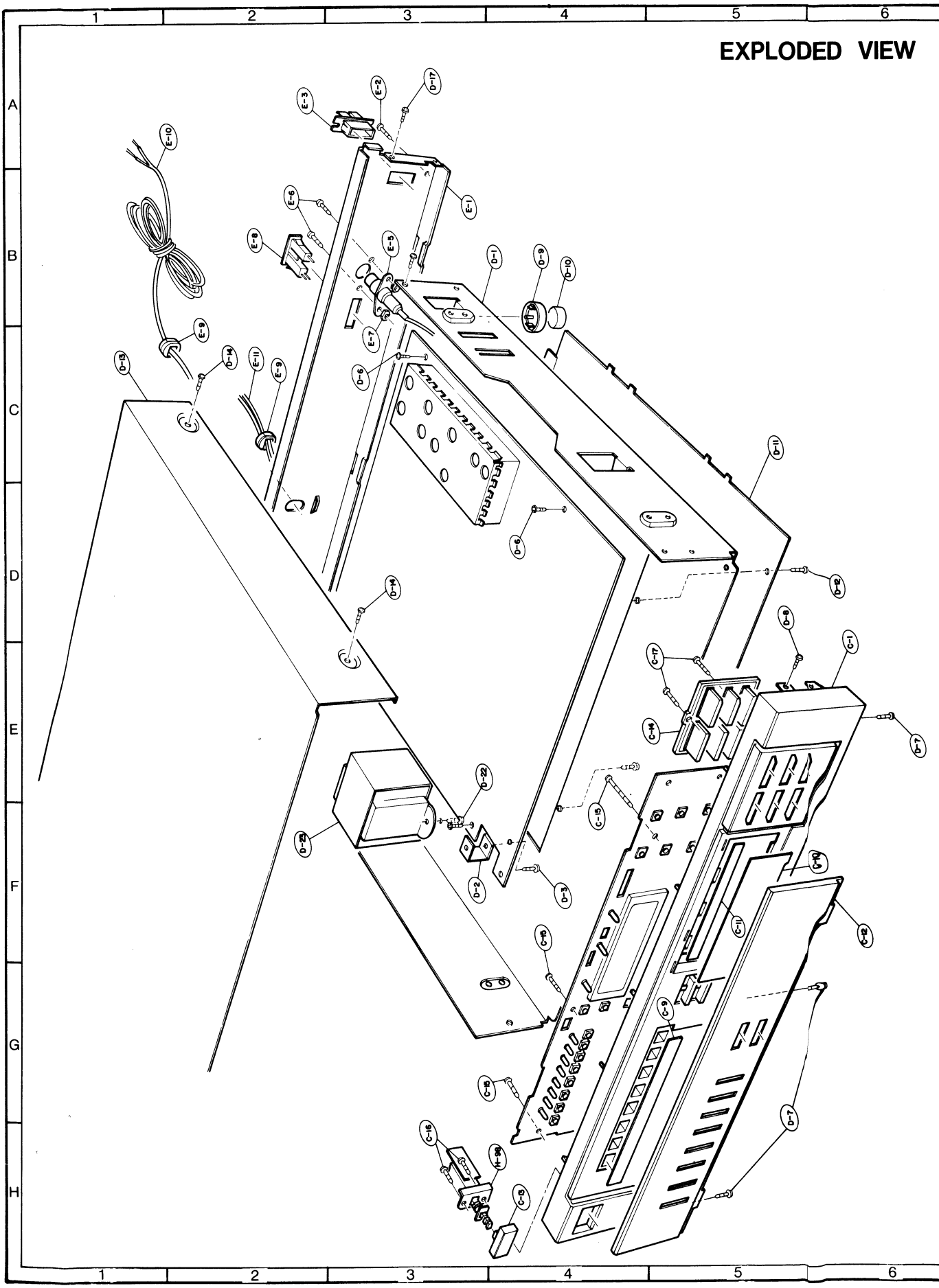


I=Input (Base)
O=Output

IC701 μPC78L05



EXPLODED VIEW



REPLACEMENT PARTS LIST

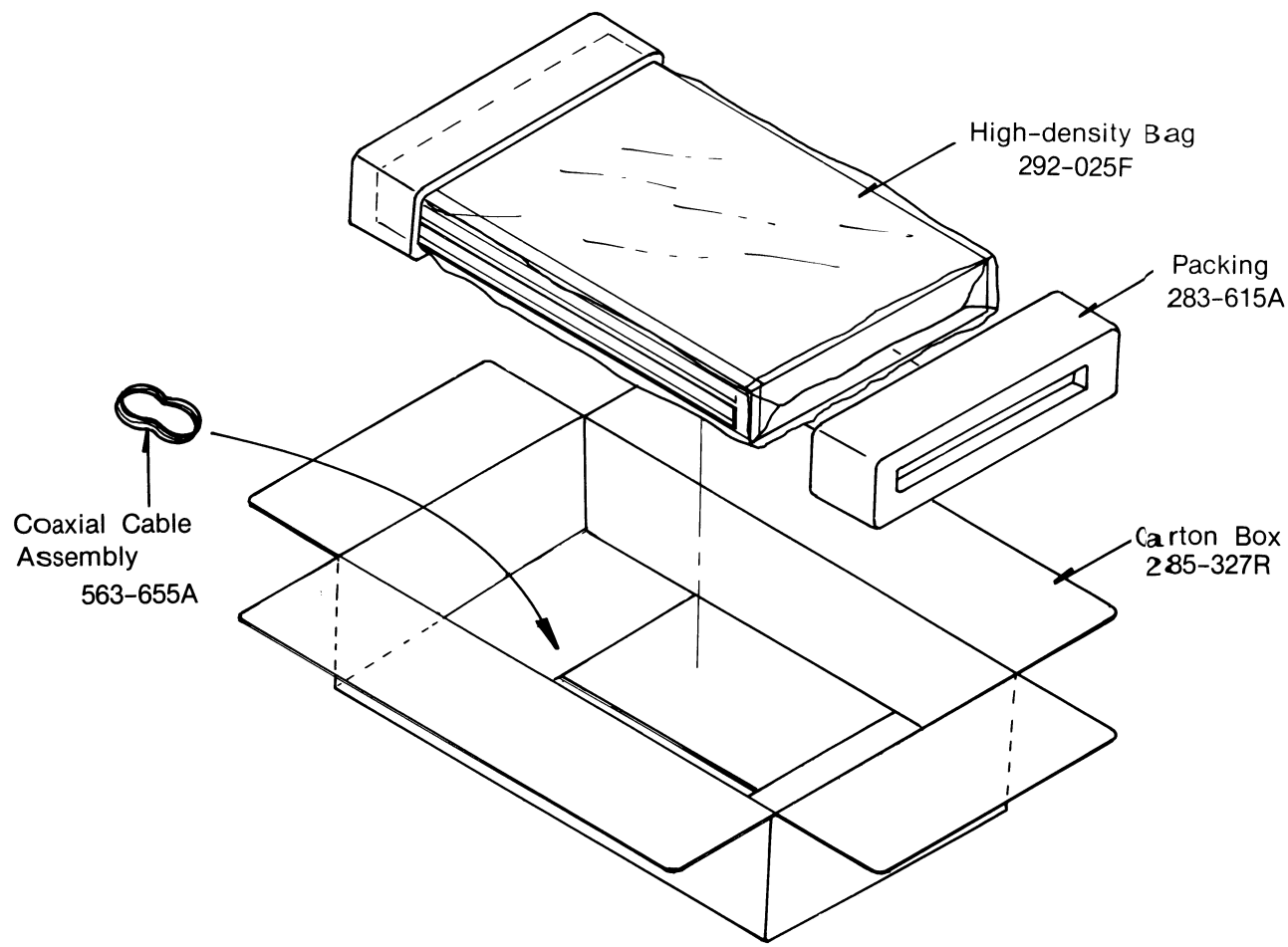
NOTE: Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

REF. NO.	PART NO.	DESCRIPTION
		INTEGRATED CIRCUITS
IC101	668-093A	LA1245, AM IF
IC201	668-650A	LA1235, FM IF
IC301	668-301B	LA3400N, MPX
IC601	668-097A	UPB553AC, Prescalar
IC602	668-096B	UPD1704-025, 3 Band PLL Synt
IC603	668-096C	UPD6322, Fip Driver
IC604	668-680B	UPA80C, TR Array
IC701	668-044B	UPC78L05J, Regulator
		TRANSISTORS & FETS
Q1-3	667-014A	FET, 3SK74L
Q4	665-819B	TR, NPN, KTC1923-O
Q5	667-009A	FET, KTK161-Y
Q101-105	665T812B	TR, NPN, KTC1815-Y
Q106	667-009A	FET, KTK161-Y
Q107,108	665T812B	TR, NPN, KTC1815-Y
Q201	665-820B	TR, NPN, KTC380TM-O
Q202,203	665T812B	TR, NPN, KTC1815-Y
Q301	665T812B	TR, NPN, KTC1815-Y
Q302	665-813B	TR, PNP, KTA1015-Y
Q303-305	665T812B	TR, NPN, KTC1815-Y
Q501-503	665T812B	TR, NPN, KTC1815-Y
Q601,602	665T812B	TR, NPN, KTC1815-Y
Q603	667-010C	FET, KTK30A-Y
Q604	665-817A	TR, NPN, KTC2240-GR
Q605	667-010C	FET, KTK30A-Y
Q606	665-817A	TR, NPN, KTC2240-GR
Q701	665-708A	TR, NPN, KTD526-O
Q702	665-817A	TR, NPN, KTC2240-GR
Q703,704	665-833C	TR, PNP, KTA817A-O
Q705	664-601A	TR, NPN, KTD880-O
Q706	665-600A	TR, PNO, 2SB764-E
Q707	665T812B	TR, NPN, KTC1815-Y
Q708	665-600A	TR, PNP, 2SB764-E
Q709	665T812B	TR, NPN, KTC1815-Y
		DIODES
D101-113	652T605B	Switch, IS2472
D201,202	652T605B	Switch, IS2472
D204,205	652T605B	Switch, IS2472
D301-306	652T605B	Switch, IS2472
D501	654-723G	Zener, DZ10B
D502,503	652T605B	Switch, IS2472
D601,602	654-722E	Zener, DZ5.1B
D603-607	652-605B	Switch, IS2472
D608-613	652T605B	Switch, IS2472
D620	652T605B	Switch, IS2472
D701-707	652-005C	Rectifier, DS4001
D708	654-722A	Zener, DZ3.0B
D709	654-723B	Zener, DZ6.2B
D710	654-615F	Zener, ZPY3O
D711	652T605B	Switch, IS2472
D712	654-722E	Zener, DZ5.1B
D713,714	652T605B	Switch, IS2472
LD301	653-636A	LED, Red, SLR54URC3-M
LD601-610	653-636A	LED, Red, SLR54URC3-M
VC1-5	654-419A	Varactor, ISV55
VC101-104	654-420A	Varactor, SVC333A
		FILTERS
CF101	616-004B	AM, SFP450H
CF102	616-021A	Resonator, BFU450C4N
CF201-203	616-010B	SFE10.7MS3GH
CF301	616-020C	Resonator, CSB456F11
LPF301,302	639-606A	Coil, Low Pass Filter
BPFI	616-301B	Band Pass
		COILS
L2	635-607Z	FM Osc.
L3	635-607W	FM Osc.
L4	635-607Y	FM Osc.
L5	635-607X	FM Osc.
L6,7	636-602B	Inductor, 2.2μH
L102	631-606D	LW RF, 5.7mH
L103	631-606E	MW RF, 190μH
L104	634-602X	MW Osc., 150μH
L105	634-602R	LW Osc., 950μH
L201,202	637-601D	Inductor, 20.8mH
L301	637-601E	Inductor, 7.8mH
L302,303	637-604A	Inductor, 47μH
T1	644-610B	FM IF
T101	644-601B	MW IF
T201	647-606A	Discriminator
		VARIABLE RESISTORS
VR201	613-002D	Semi-Fixed, 22kB
VR301	613-002H	Semi-Fixed, 330kB
		CRYSTAL
X601	617-601D	4.500MHz
		OTHER CIRCUITRY PARTS
TC1-3	623-025A	Trimmer
TC4	623-026A	Trimmer
TC101-103	623-001E	Trimmer
TC104	623-001F	Trimmer
S601-616	558-026A	Switch, Tact
⚠	554-620C	Switch, Power

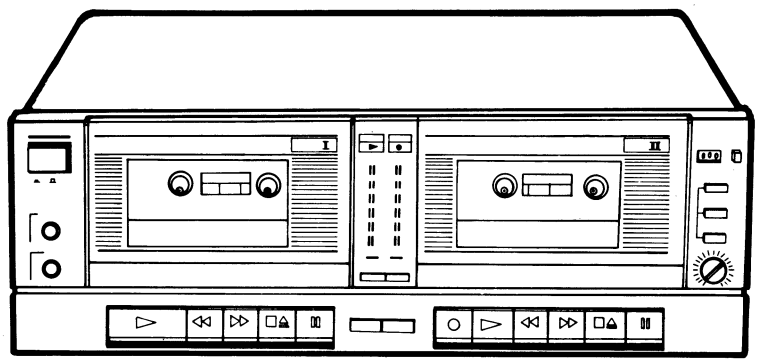
REF. NO.	PART NO.	DESCRIPTION
		PCB ASSEMBLIES
	511-159A	PCB Assembly, Main
	511-285A	PCB Assembly, Switch
		CABINET PARTS
C-1	258-540A	Panel, Front
C-9	231-560H	Sheet, Display
C-10	236-543B	Window, Function
C-11	231-560I	Sheet, Display
C-12	236-540A	Window, Front
C-13	273-058A	Knob, Power
C-14	273-540B	Knob, Function
C-15	353-025F	Screw, Special 3×8
C-16	353-025F	Screw, Special 3×8
C-17	353-025N	Screw, Special 3×24
D-1	313-540A	Chassis, Bottom
D-2	321-861A	Bracket, PCB
D-3	TRQ1830J	Screw, TRQ2+3×6A
D-6	TRQ1830J	Screw, TRQ2+3×6A
D-7	TCQ1836J	Screw, TCQ+3×8
D-8	TRQ1830J	Screw, TRQ2+3×6A

REF. NO.	PART NO.	DESCRIPTION
D-9	265-027A	Foot
D-10	472-610D	Felt
D-11	256-540A	Bottom, Plate
D-12	TRQ1830J	Screw, TRQ2+3×6A
D-13	213-520A	Cabinet
D-14	353-633A	Screw, Special
D-17	TRQ1836J	Screw, TRQ2+3×8A
D-22	MRC2239J	Screw, MRC+4×10
D-23 ⚠	641-717D	Trans, Power 240V
E-1	258-541F	Panel, Back
E-2	TRQ1836I	Screw, TRQ2+3×8A
E-3	324-515B	Holder, AM Ant
E-5	573-002B	Socket Ant
E-6	MRC1830I	Screw, MRC+3×6
E-7	NHA1800J	Nut
E-8	573-102A	Socket AM Ant
E-9	324-348A	Holder, Cord
E-10 ⚠	681-024B	Cord, Power
E-11	564-016F	Cord, Phono
H-98	554-620C	Switch, Power
		ACCESSORY
	632-210B	Coil Ant Loop MW

PACKING OF THE SET



STEREO DOUBLE CASSETTE DECK



MODEL: GSW-5420

SPECIFICATIONS

ELECTRICAL

Tape Speed	4.75 cm/sec
Wow & Flutter	0.1%
F.F. Time	120 sec (C-60)
Rewind Time	120 sec (C-60)
Frequency Response	10 Hz-10 kHz
Distortion	
Playback	1%
Recording Play	1.5%
Channel Separation	35 dB
Erase Ratio	65 dB
Cross Talk	60 dB
Input Sensitivity	60 dB
Output Level	0.5 ± 1 dB
Dubbing Level	0 ± 1 dB

GENERAL

Line Voltage	AC 12V or 22V
Power Consumption	11.4W
Dimensions (Width × Height × Depth)	345 × 114 × 280 (mm)
Weight	3.9kg

NOTE: Specifications for this model are subject to change without prior notice.

NAMES OF CONTROL PARTS

[1] POWER Switch
[2] HIGH SPEED Button
[3] Level Meter Indicators
[4] DUBBING Indicator
[5] RECORD Indicator
[6] DOLBY Noise Button
[7] TAPE COUNTER
[8] TAPE Selector Buttons
[9] RECORD LEVEL Control (II Deck)
[10] Deck I: Cassette Compartment
[11] Deck I: PAUSE Button
[12] Deck I: STOP/EJECT Button
[13] Deck I: FAST FORWARD Button
[14] Deck I: REWIND Button
[15] Deck I: PLAY Button
[16] Deck I: RECORD Button
[17] CONTINUOUS Button
[18] SYNCHRONIZE Dubbing Button
[19] Deck II: PAUSE Button
[20] Deck II: STOP/EJECT Button
[21] Deck II: FAST FORWARD Button
[22] Deck II: REWIND Button
[23] Deck: PLAY Button
[24] Deck II: Cassette Compartment
[25] MIC Jack
[26] HEADPHONE Jack
[27] Line in Jack
[28] Line Out Jack
[29] Fetch Cord

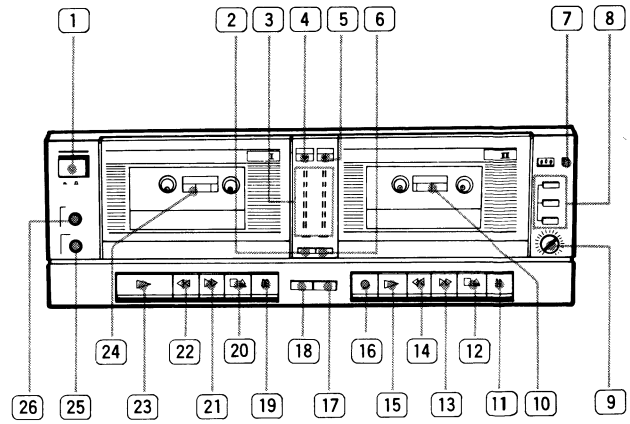


Figure 19 FRONT VIEW

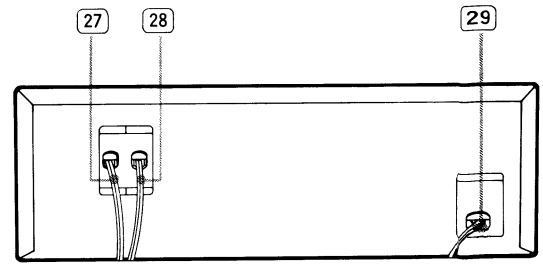


Figure 20 BACK VIEW

NOTE: For a complete description of the operation of this unit, please refer to the owners manual.

ADJUSTMENT

ADJUSTMENT POINTS

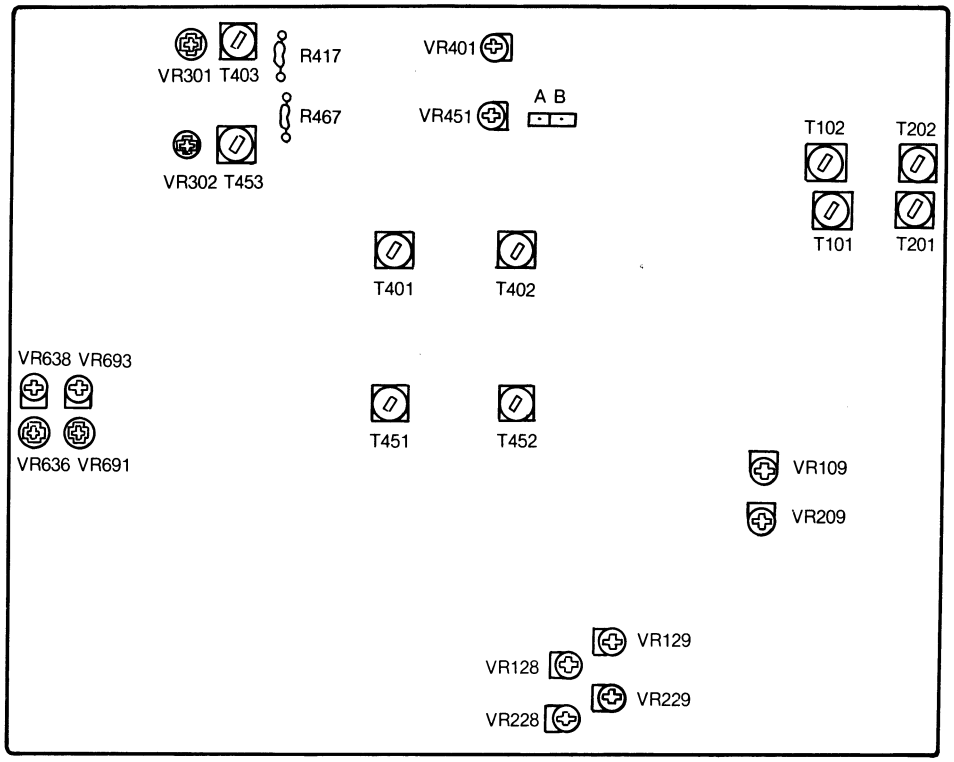


Figure 21 MAIN P.C. BOARD

1. AZIMUTH ADJUSTMENT

Deck Mode	Test Tape	Test Point	Adjustment	Adjust For
Playback	MTT-114N	A,B	Azimuth adjusting screw	R/L Maximum

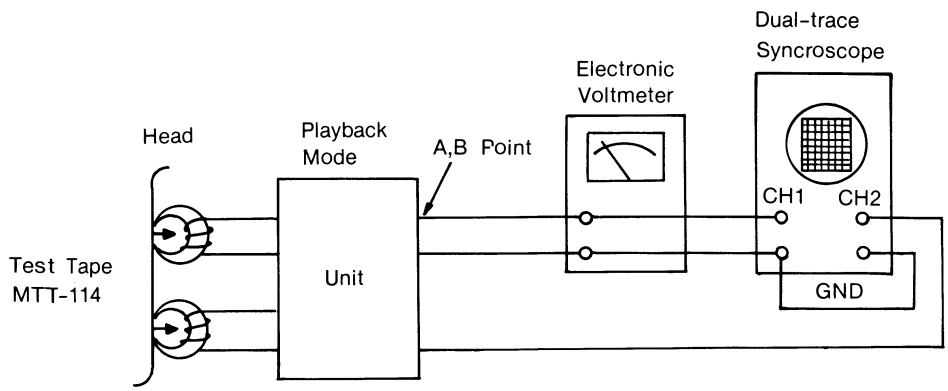


Figure 22 AZIMUTH

2. MOTOR SPEED ADJUSTMENT

Item	Deck Mode	Test Tape	Test Point	Adjustment	Adjust For	Remark
High Speed	Playback	MTT-111	A,B	Deck I: VR636 Deck II: VR691	6kHz ± 60Hz	Earth the base of TR626
Normal Speed	Playback	MTT-111	A,B	Deck I: VR638 Deck II: VR693	3kHz ± 30Hz	

*Perform the high speed adjustment first and then the normal speed adjustment.

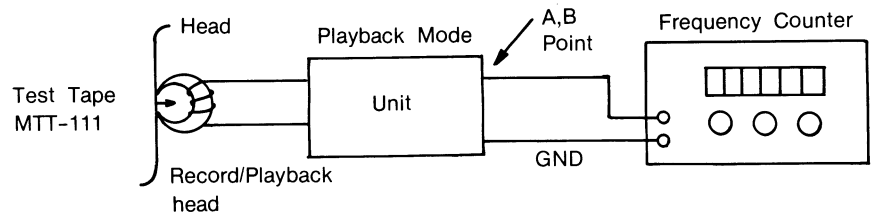


Figure 23 TAPE SPEED

3. PLAYBACK LEVEL ADJUSTMENT

Deck Mode	Test Tape	Test Point	Adjustment	Adjust For	Remark
Playback	MTT-150	A,B	Deck I: VR128 (Left) VR228 (Right) Deck II: VR109 (Left) VR203 (Right)	500mV ± 1dB	Dolby off

*After you adjust to being associated with deck I and deck II, repeat the adjustment several times.

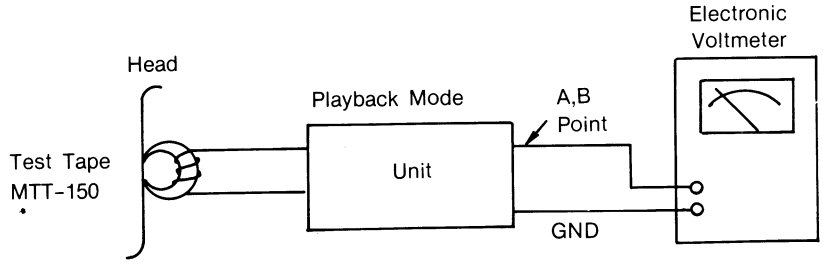


Figure 24 PLAYBACK LEVEL

4. BIAS TRAP (1) ADJUSTMENT

Deck	Deck Mode	Test Tape	Test Point	Adjustment	Adjust For	Remark
Deck II	Record/Playback and Pause	Blank Tape	A,B	T101,T201	Minimum	Metal Function Deck I: Stop

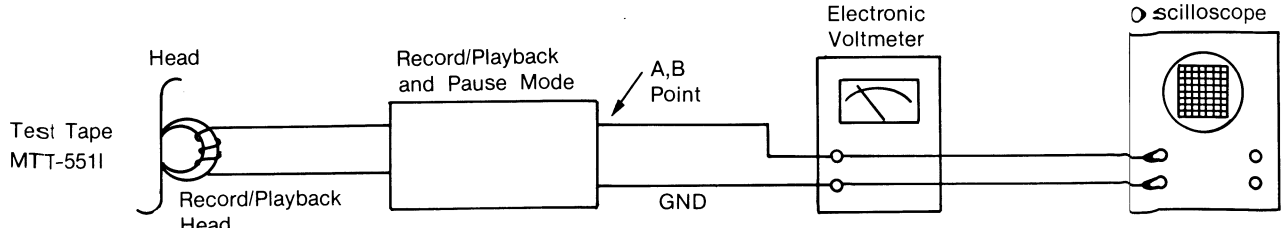


Figure 25 BIAS TRAP (1)

5. BIAS TRAP (2) ADJUSTMENT

Deck	Deck Mode	Test Tape	Test Point	Adjustment	Adjust For	Remark
Deck II	Record/Playback and Pause	Blank Tape	R417	T403	Minimum	Metal Function Deck A: Stop
			R467	T453		

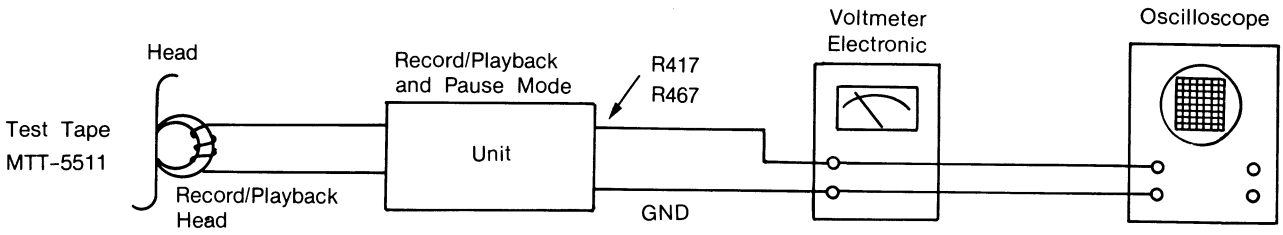


Figure 26 BIAS TRAP (2)

6. PILOT SIGNAL TRAP ADJUSTMENT

Deck	Deck Mode	Test Tape	Test Point	Adjustment	Adjust For	Remark
Deck II	Record/Playback and Pause	Blank Tape	A,B	T102,T202	Minimum	Dubbing off Deck I: Stop

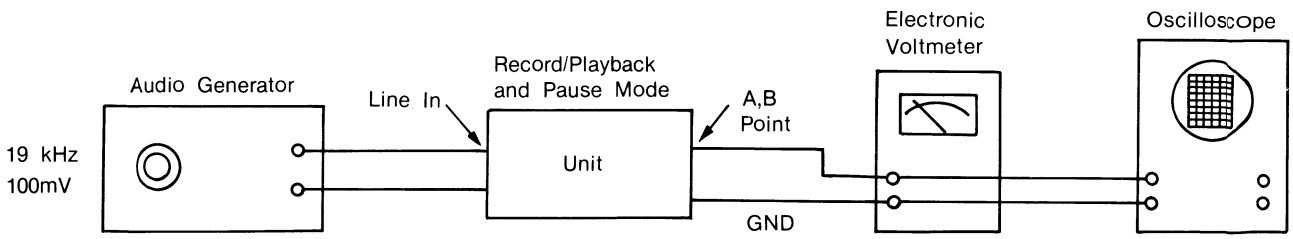


Figure 27 PILOT SIGNAL TRAP

7. DUBBING LEVEL ADJUSTMENT

Deck	Deck Mode	Test Tape	Test Point	Adjustment	Adjust For	Remark
Deck I	Playback	MTT-150	A,B	VR129	580mV ± 1dB	Dubbing on
Deck II	Record/Playback and Pause	Blank Tape		VR229		

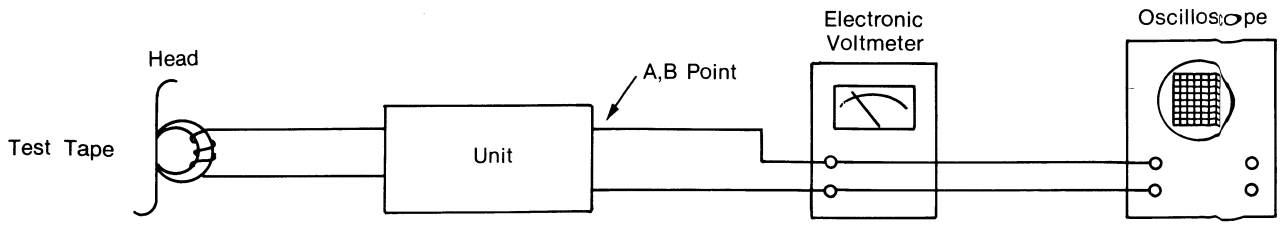


Figure 28 DUBBING LEVEL

8. RECORD PEAKING FREQUENCY -AT NORMAL SPEED

Deck	Deck Mode	Test Tape	Test Point	Adjustment	Adjust For	Remark
Deck II	Record/Playback and Pause	Blank Tape	R417 R467	T401 T451	Maximum	Deck I: Stop Dubbing off, Hi-speed off

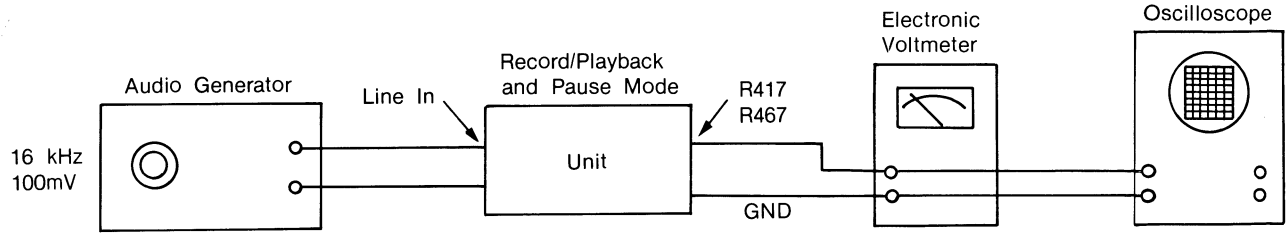


Figure 29 RECORD PEAKING FREQUENCY

9. RECORD PEAKING FREQUENCY-AT HIGH SPEED

Deck	Deck Mode	Test Tape	Test Point	Adjustment	Adjust For	Remark
Deck I	Playback	Blank Tape	R417 R467	T402 T452	Maximum	Dubbing on Hi-speed on
Deck II	Record/Playback and Pause					

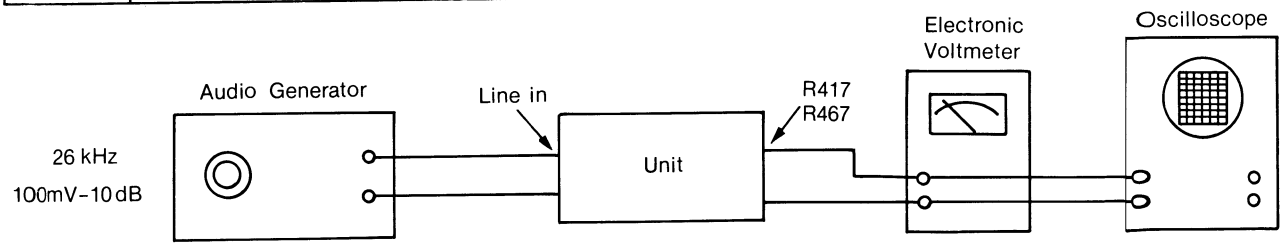
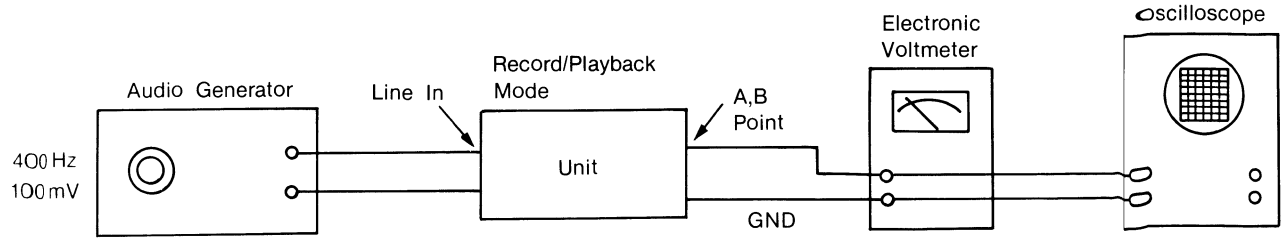


Figure 30 RECORD PEAKING FREQUENCY

10. RECORD LEVEL ADJUSTMENT

Deck	Deck Mode	Test Tape	Test Point	Adjust-ment	Input	Adjusi	Remark
Deck II	Record/Playback → Playback	MTT-5511	A,B	T401 T451	Record Volume: Maximum, A,B Point: 400Hz, 580mV	580mV ± 1 dB at Playback	Dolby off Normal speed Deck I: Stop



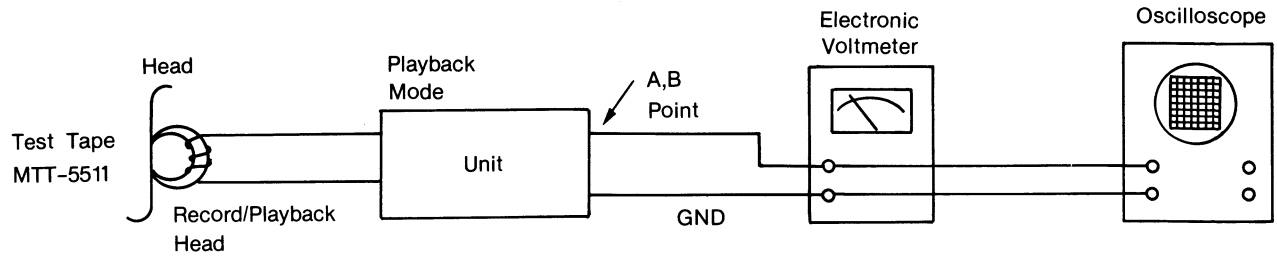


Figure 31 RECORD LEVEL

11. RECORD/PLAYBACK FREQUENCY RESPONSE

DECK	Deck Mode	Test Tape	Test Point	Adjust-ment	Input	Adjust For	Remark
Deck II	Record/Playback → Playback	MTT-5511	A,B	VR301 VR302	250HZ-12.5kHZ 400Hz	±0dB	Dolby off Normal speed

*Adjust under normal speed, confirm record/playback response of high speed, repeat steps 10 and 11 several times at the same time.

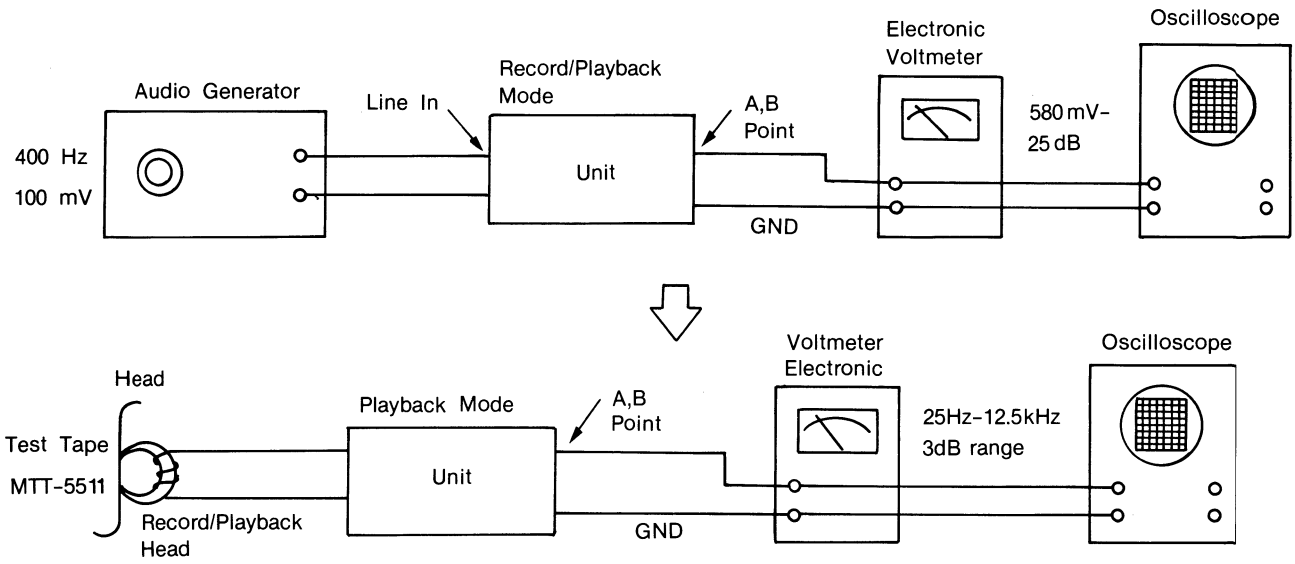
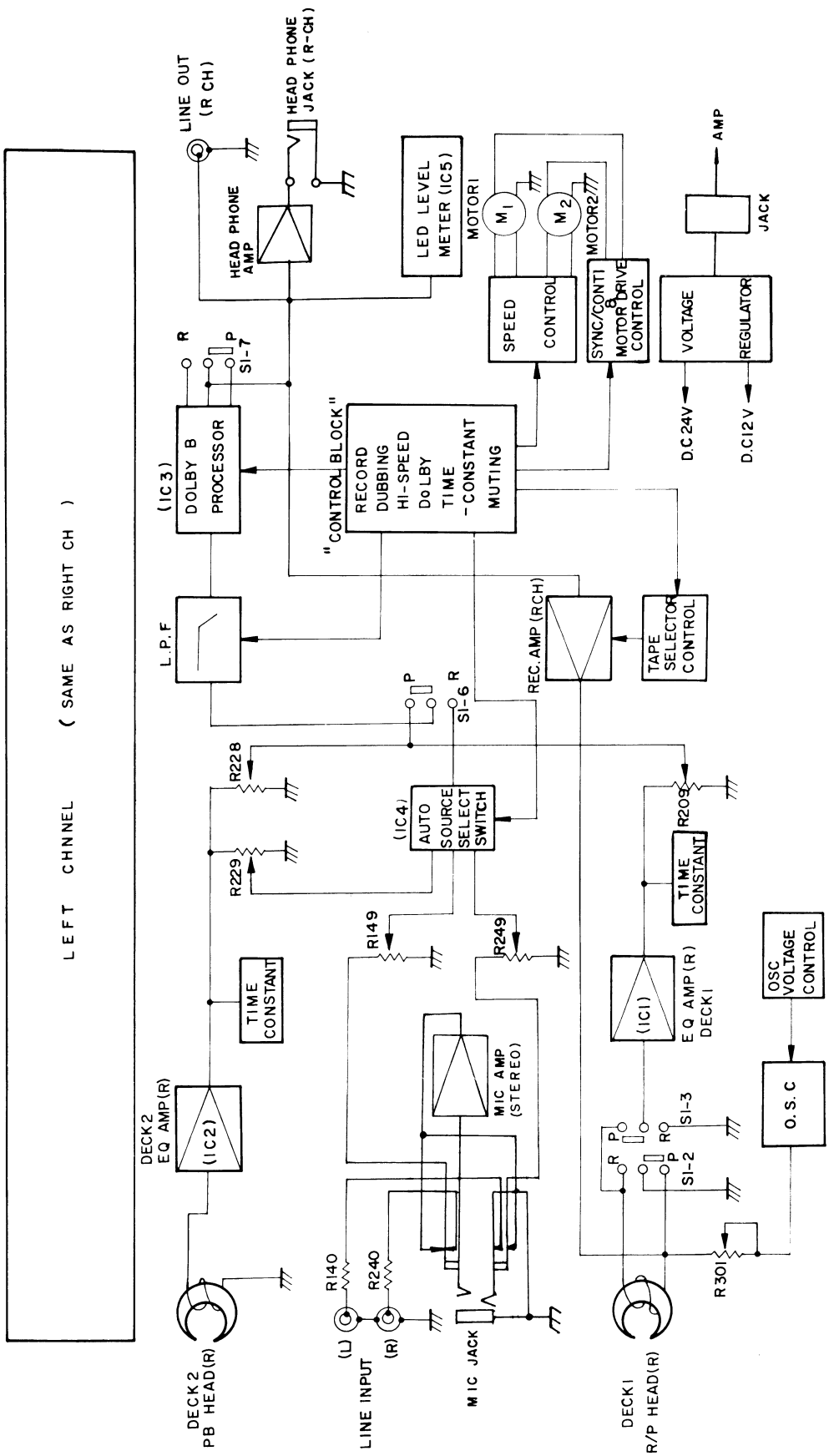
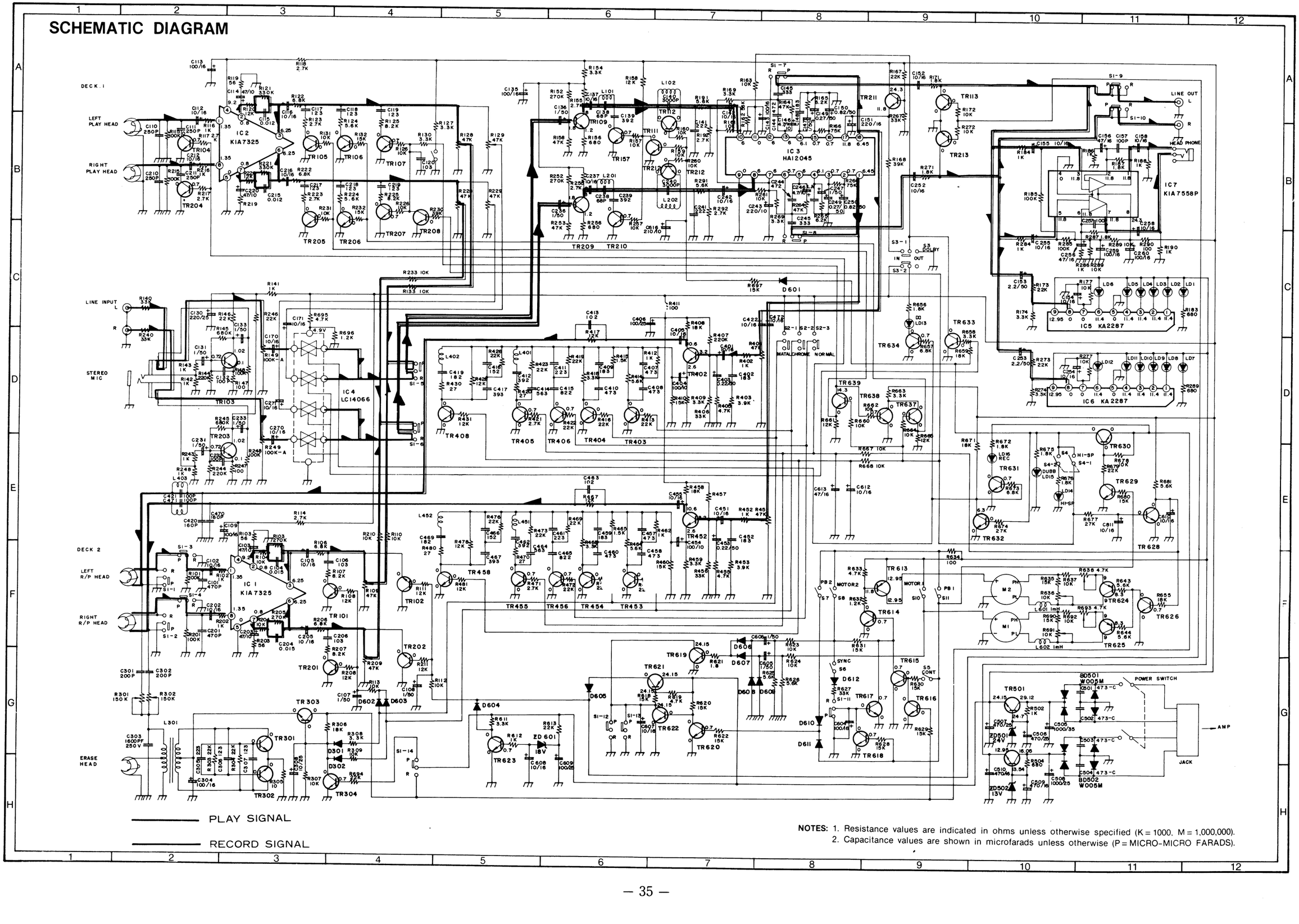


Figure 32 RECORD/PLAYBACK RESPONSE

BLOCK DIAGRAM



SCHEMATIC DIAGRAM

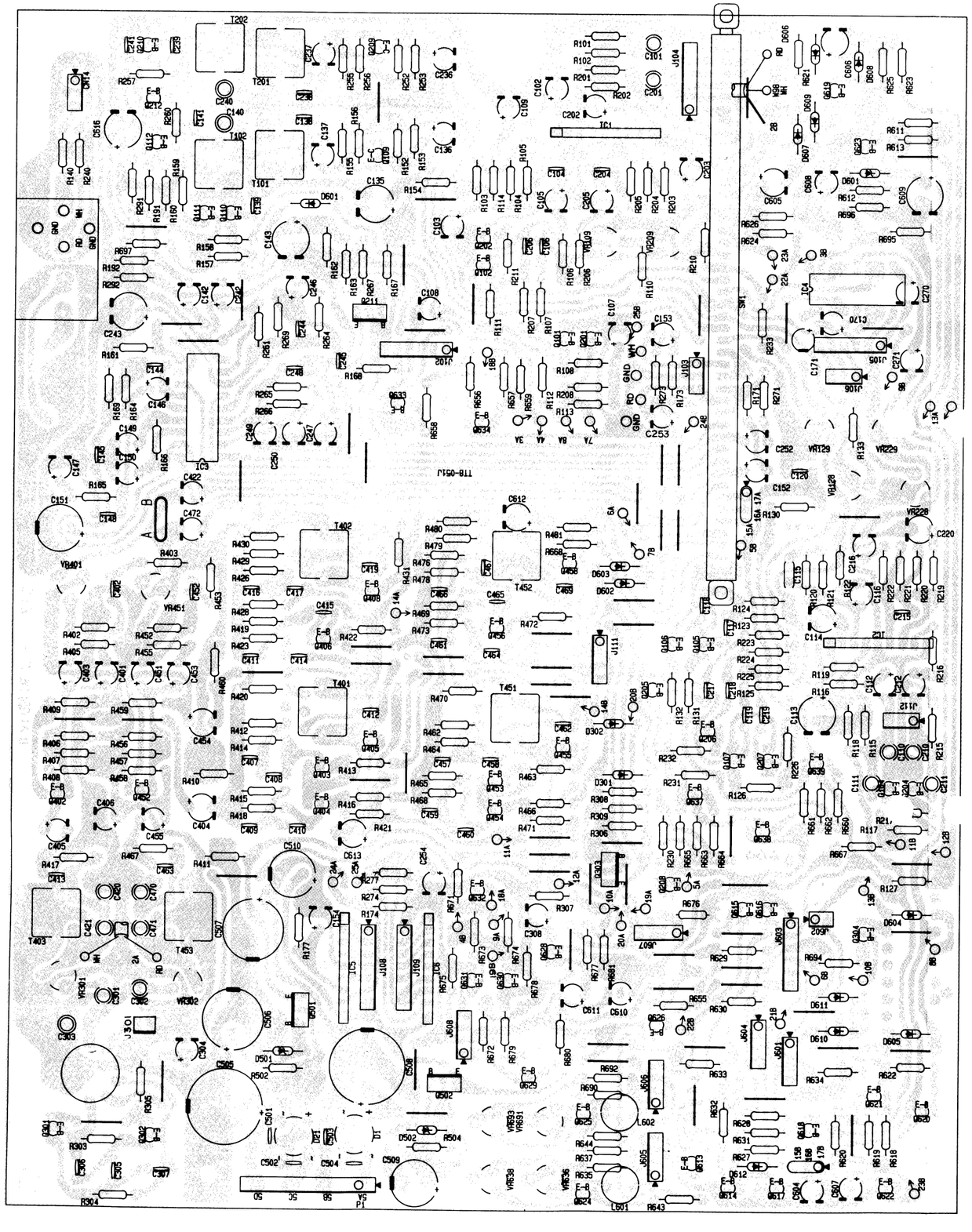


NOTES: 1. Resistance values are indicated in ohms unless otherwise specified (K = 1000, M = 1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P = MICRO-MICRO FARADS).

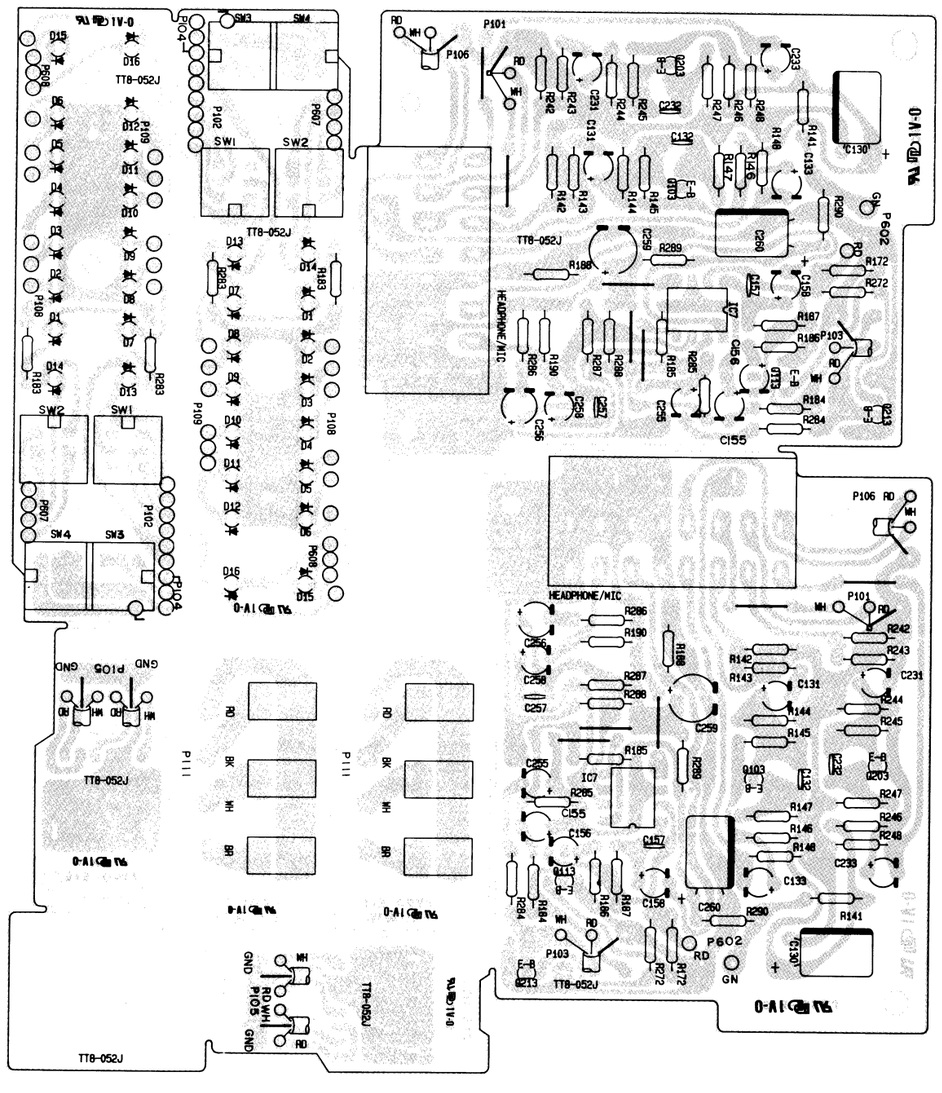
PCB LAYOUT

GSW-5420 GSW-5420

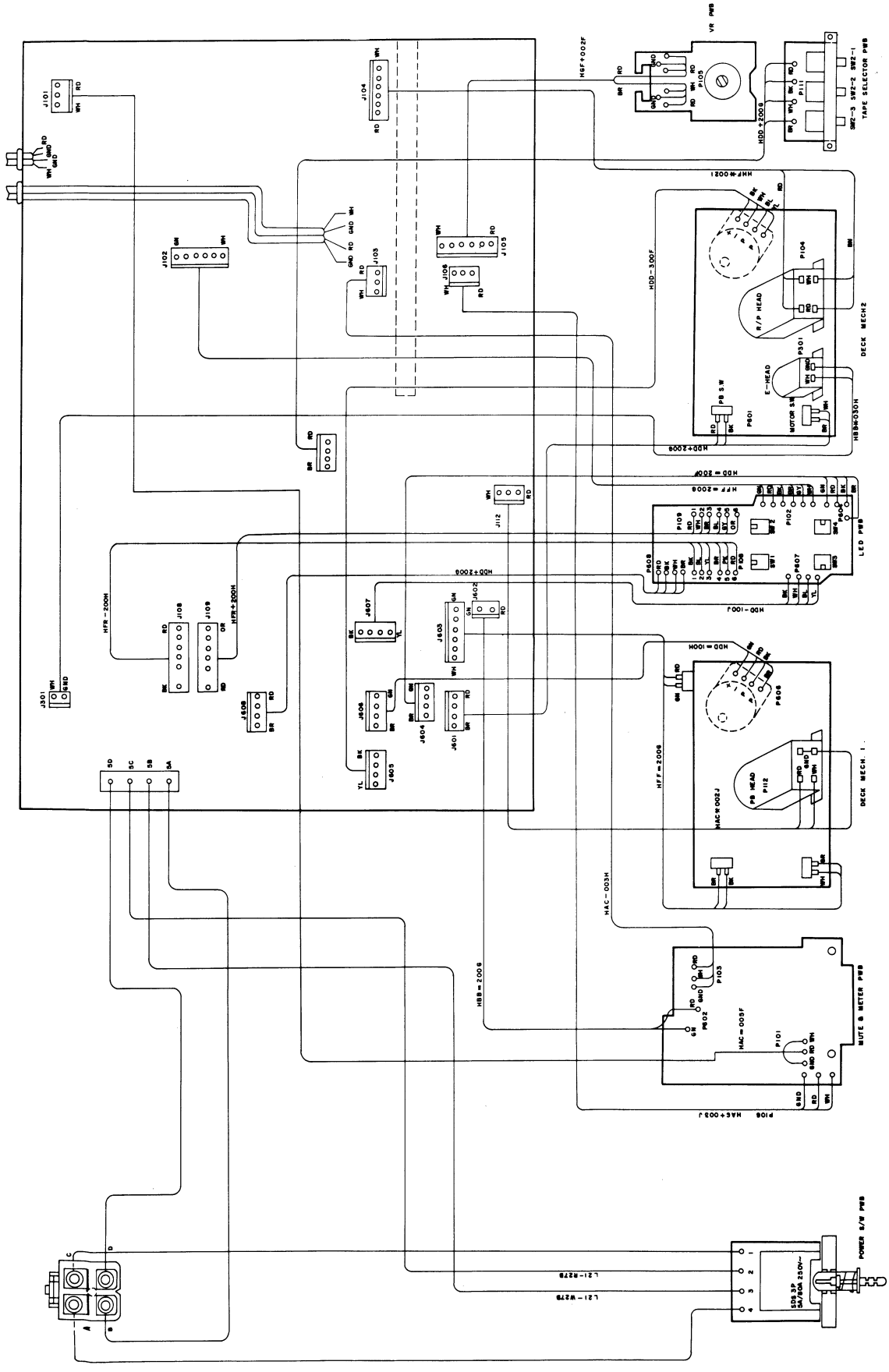
MAIN P.C. BOARD



MIC & HEADPHONE P.C. BOARD

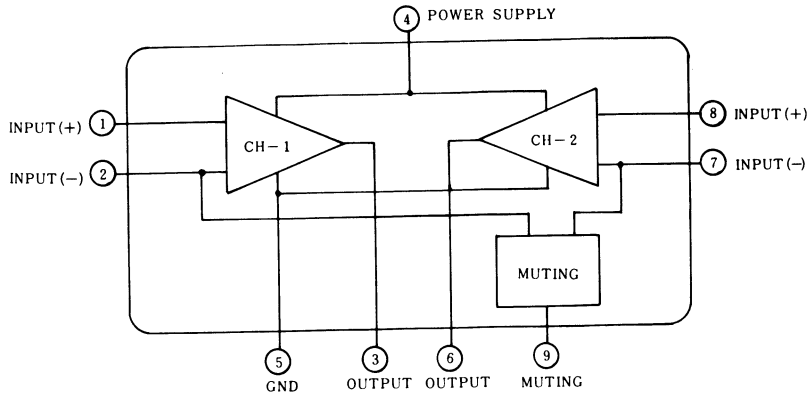


WIRING DIAGRAM

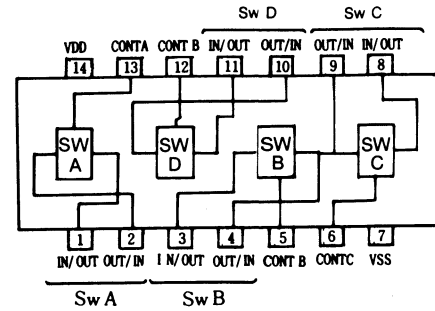


IC EQUIVALENT CIRCUIT

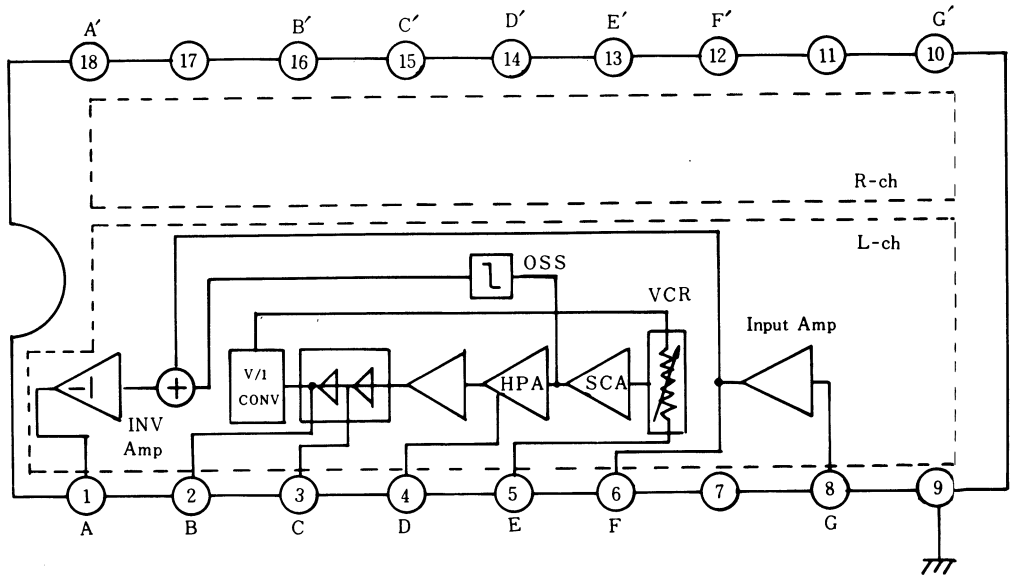
IC1, 2 KIA7325P



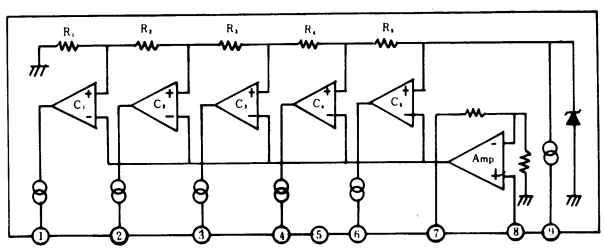
IC4 LC4066B



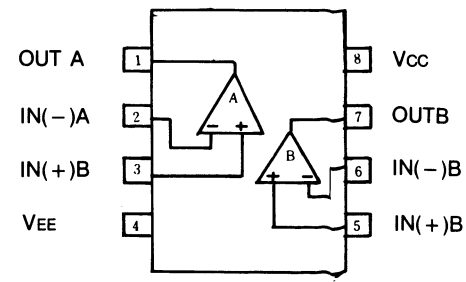
IC3 HA12045



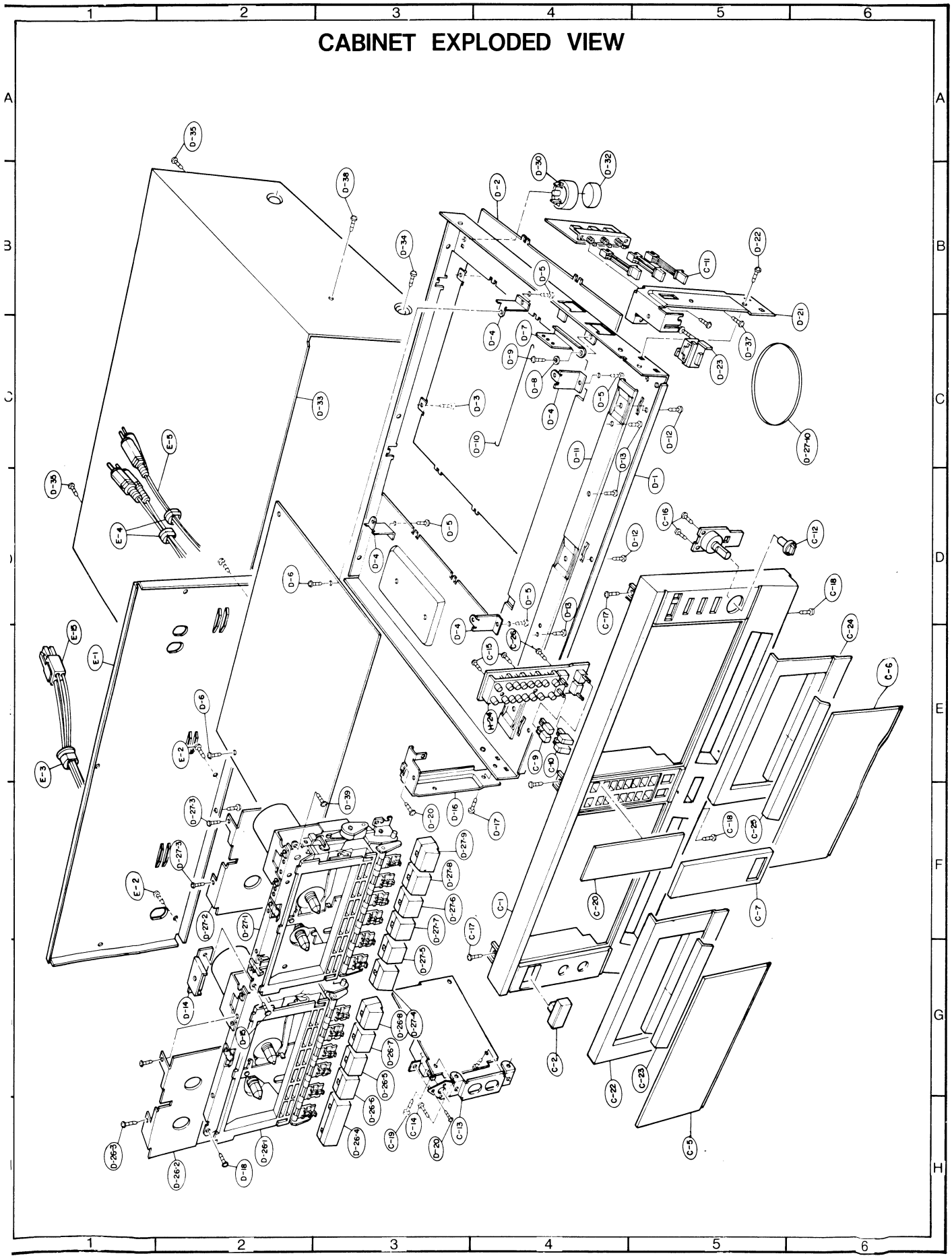
IC5,6 KA2287



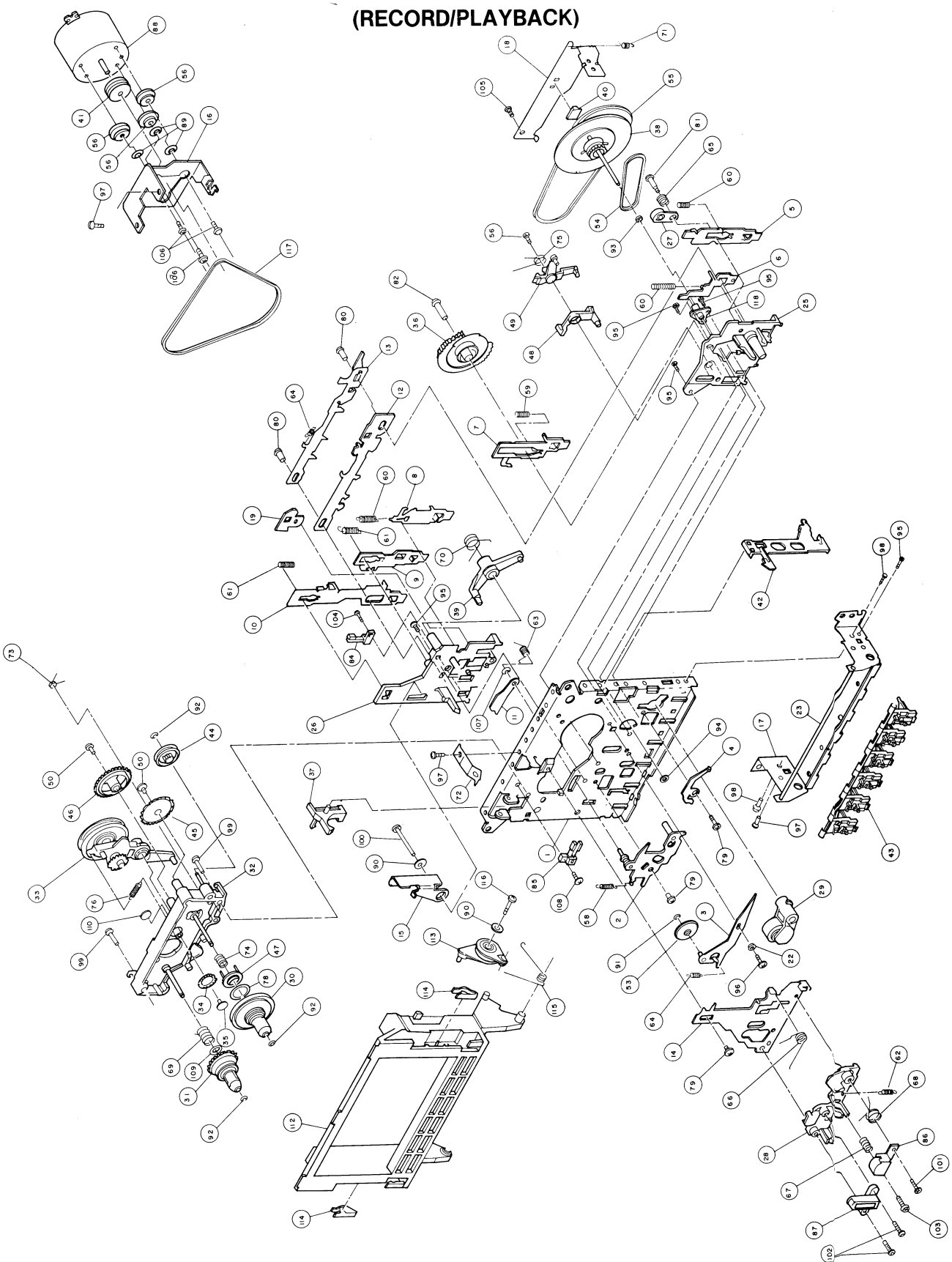
IC7 KIA75558P



CABINET EXPLODED VIEW

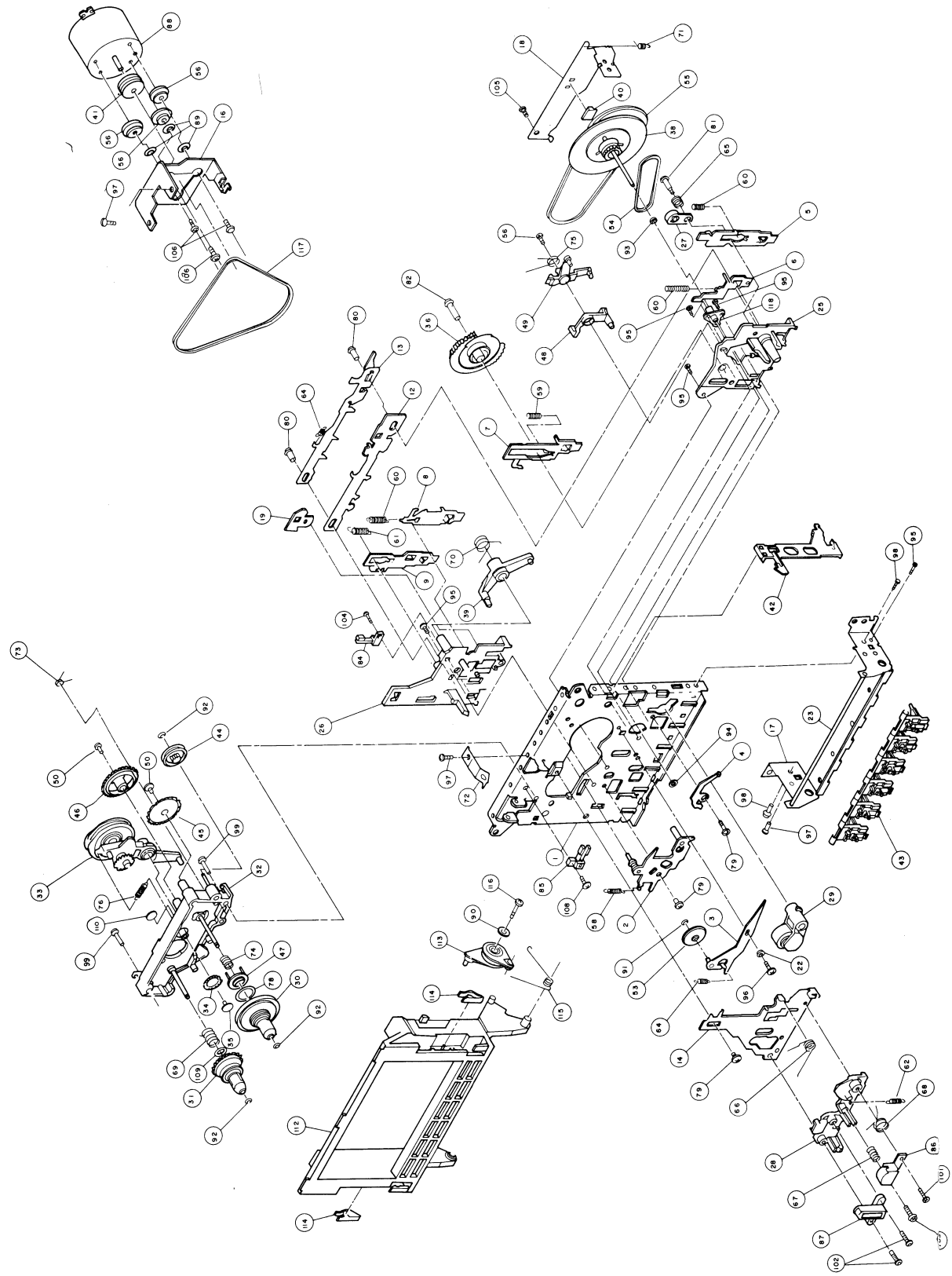


MECHANISM EXPLODED VIEW
(RECORD/PLAYBACK)



NOTE: Excluded parts in the parts list are not available as replacement parts.

MECHANISM EXPLODED VIEW
(PLAYBACK)



NOTE: Excluded parts in the parts list are not available as replacement parts.

REPLACEMENT PARTS LIST

NOTE: Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

REF. NO.	PART NO.	DESCRIPTION
		INTEGRATED CIRCUITS
IC1,2	668-621A	KIA7325P, Pre Amp.
IC3	668-664A	HA12045, Dolby
IC4	668-662A	LC4066B, Analog Switch
IC5,6	668-666D	KA2287, 5 Dot LED Drive
IC7	668-051F	KIA75558P, Dual OP
		TRANSISTORS
TR101,102	665T812B	NPN, KTC1815-Y
TR103	662-606C	NPN, MPS9635C
TR104-107	665T812B	NPN, KTC1815-Y
TR109	662-606C	NPN, MPS9635C
TR110-113	665T812B	NPN, KTC1815-Y
TR201,202	665T812B	NPN, KTC1815-Y
TR203	662-606C	NPN, MPS9635C
TR204-206	665T812B	NPN, KTC1815-Y
TR207,208	665T812B	NPN, KTC1815-Y
TR209	662-606C	NPN, MPS9635C
TR210	665T812B	NPN, KTC1815-Y
TR211	665-708B	NPN, KTD526-Y
TR212,213	665T812B	NPN, KTC1815-Y
TR301,302	665-881C	NPN, KTC2236A-Y
TR303	665-708B	NPN, KTD526-Y
TR304	665T812B	NPN, KTC1815-Y
TR402	665-816B	NPN, KTC732TM-BL
TR403-406	665T812B	NPN, KTC1815-Y
TR408	665T812B	NPN, KTC1815-Y
TR452	665-816B	NPN, KTC732TM-BL
TR453-456	665T812B	NPN, KTC1815-Y
TR458	665T812B	NPN, KTC1815-Y
TR501,502	665-708B	NPN, KTD526-Y
TR613	665-712A	PNP, KTA966A-Y
TR614-620	665T812B	NPN, KTC1815-Y
TR621	665-813B	PNP, KTA1015-Y
TR622,623	665T812B	NPN, KTC1815-Y
TR624,625	665-813B	PNP, KTA1015-Y
TR626	665T812B	NPN, KTC1815-Y
TR628,629	665T812B	NPN, KTC1815-Y
TR630	665-813B	PNP, KTA1015-Y
TR631-634	665T812B	NPN, KTC1815-Y
TR637-639	665T812B	NPN, KTC1815-Y
		DIODES
D301,302	651-003A	Switch, DS4148
D601-612	651-003A	Switch, DS4148
ZD501	654-724F	Zener, DZ24B
ZD502	654-724C	Zener, DZ13B
ZD601	654-724E	Zener, DZ18B
BD501,502	652-013A	Rectifier, W005H
LD1-4	653-636B	LED, Green, SLR54GC3-M

REF. NO.	PART NO.	DESCRIPTION
LD5,6	653-636A	LED, Red, SLR54URC3-M
LD7-10	653-636B	LED, Green, SLR54GC3-M
LD11-16	653-636A	LED, Red, SLR54URC3-M
		COILS
L101,102	638-601C	Trap
L201,202	638-601C	Trap
L301	634-608C	Tape Osc.
L401-403	638-601C	Trap
L451-453	638-601C	Trap
L601,602	639-003G	Inductor
		VARIABLE RESISTORS
R109	613-002G	Semi-Fixed, 47KB
R128,129	613-002G	Semi-Fixed, 47KB
R149	611-640A	100KA
R209	613-002G	Semi-Fixed, 47KB
R228,229	613-002G	Semi-Fixed, 47KB
R249	611-640A	100KA
R301,302	613-002E	Semi-Fixed, 150KB
R401	613-002G	Semi-Fixed, 47KB
R451	613-002G	Semi-Fixed, 47KB
R636	613-002F	Semi-Fixed, 10KB
R638	613-002C	Semi-Fixed, 4.7KB
R691	613-002F	Semi-Fixed, 10KB
R693	613-002C	Semi-Fixed, 4.7KB
		OTHER CIRCUITRY PARTS
S1	552-608A	Switch, Slide
SW2	554-636A	Switch, Push
SW3-6	554-635A	Switch, Push
⚠	554-620F	Switch, Power
	572-059A	Jack, Mic
	572-059B	Jack, Headphone
		PCB ASSEMBLIES
	511-051J	Main PCB Assembly
	511-054A	Mic & Headphone PCB Assembly
		CABINET PARTS
C-1	258-542A	Panel, Front
C-2	273-058A	Knob, Power
C-5	236-547A	Window Cassette Door-A
C-6	236-547B	Window Cassette Door-B
C-7	236-548A	Window LED Display
C-9	273-542A	Knob, Push Switch

REF. NO.	PART NO.	DESCRIPTION
C-10	273-543A	Knob, Synchro Switch
C-11	273-805A	Knob, Tape Select
C-12	273-513D	Knob, Rotary
C-13	321-545A	Bracket Jack Power Switch
C-14	353-025F	Screw, Special 3×8
C-15	353-025R	Screw, Special 3×20
C-16	353-025F	Screw, Special 3×8
C-17	TCQ1830J	Screw, Tapping TC3+3×6
C-18	TCQ1836J	Screw, TCQ+3×8
C-19	TRQ1830J	Screw, TRQ2+3×6A
C-20	231-560K	Sheet, Display
C-22	324-540A	Holder Cassette Door-A
C-23	246-540A	Decoration Cassette Door-A
C-24	324-540B	Holder Cassette Door-B
C-25	246-540B	Decoration Cassette Door-B
C-26	353-025F	Screw, Special 3×8
D-1	313-502A	Chassis, Bottom
D-2	256-220A	Plate, Bottom
D-3	TRQ1836J	Screw, TRQ2+3×8A
D-4	321-901A	Bracket, PWB
D-5	TRQ1836J	Screw, TRQ2+3×8A
D-6	TRQ1836J	Screw, TRQ2+3×8A
D-7	333-300A	Lever, Record
D-8	341-020A	Bushing, Lever
D-9	TRQ1836J	Screw, TRQ2+3×8A
D-10	442-620B	Spring, Record
D-11	321-421A	Bracket, Deck-A
D-12	TCQ1830J	Screw, Tapping TC3+3×6
D-13	353-022B	Screw
D-14	321-543A	Bracket, Deck-B
D-16	321-904B	Bracket-L, Deck
D-17	TRQ1836J	Screw, TRQ2+3×8A
D-18	TCQ1836J	Screw, TCQ+3×8
D-20	MRC1830J	Screw
D-21	321-903A	Bracket-R, Deck
D-22	TRQ1836J	Screw, TRQ2+3×8A
D-23	517-117A	Tape Counter
D-26-1	419-004G	Deck Mechanism, Playback
D-26-2	221-500A	Cover, Cassette Mechanism
D-26-3	353-022B	Screw
D-26-4	273-574A	Knob Cassette Play
D-26-5	273-575B	Knob Cassette Rew.
D-26-6	273-575C	Knob Cassette F.F.
D-26-7	273-575D	Knob Cassette Stop/Eject
D-26-8	273-575E	Knob Cassette Pause
D-27-1	419-004F	Deck Mechanism, Record/Play
D-27-2	221-500A	Cover Cassette Mechanism
D-27-3	353-022B	Screw
D-27-4	273-575A	Knob Cassette Play

REF. NO.	PART NO.	DESCRIPTION
D-27-5	273-575B	Knob Cassette Rew
D-27-6	273-575C	Knob Cassette F.F.
D-27-7	273-575D	Knob Cassette Stop/Eject
D-27-8	273-575E	Knob Cassette Pause
D-27-9	273-575F	Knob Cassette Record
D-27-10	451-145E	Belt, Counter
D-30	265-027A	Foot
D-32	472-610D	Felt
D-33	213-252A	Cabinet
D-34	353-633A	Screw, Special
D-35	TRQ1836I	Screw, TRQ2+3×8A
D-37	MRC1830J	Screw
D-38	353-025B	Screw, Special 3×8
D-39	TCQ1836J	Screw, TCQ+3×8
E-1	313-542B	Chassis, Back
E-2	TRQ1836I	Screw, TRQ2+3×8A
E-3	324-620A	Holder, Cord
E-4	324-348A	Holder, Cod
E-5	564-016F	Cord, Phono
E-15	563-660C	Connector Assembly
H-24	324-333A	Holder, LED

CASSETTE MECHANISM PARTS

29	99X-0980	P, Roller Arm Assembly
41	99X-1169	Motor Pulley
42	99X-0989	Eject Lever (F)
54	99X-1001	Auto Belt
56	99X-1004	Motor Cushion
58	99X-1006	Shift Arm Spring
71	99X-1022	Eject Lever Spring
72	99X-1023	Pack Spring
73	99X-1024	Auto Sensor Spring
74	99X-1025	Auto Clutch Spring
76	99X-1019	Cluth Arm Spring
78	99X-1028	Auto Clutch Felt
84	99X-1036	Leaf Switch
85	99X-1037	Leaf Switch
86	99X-1029	RP head
87	99X-1030	E Head
88	99X-1064	Motor
100	99X-1052	Tap Tite Screw
101	99X-1053	Binding Screw
102	99X-1054	Binding Screw
103	99X-1055	Washer Head Screw
104	99X-1056	Tapping Screw
105	99X-1057	Tapping Screw
106	99X-1058	Motor Screw

PACKING OF THE SET